APRIL • 1959

FIREMEN

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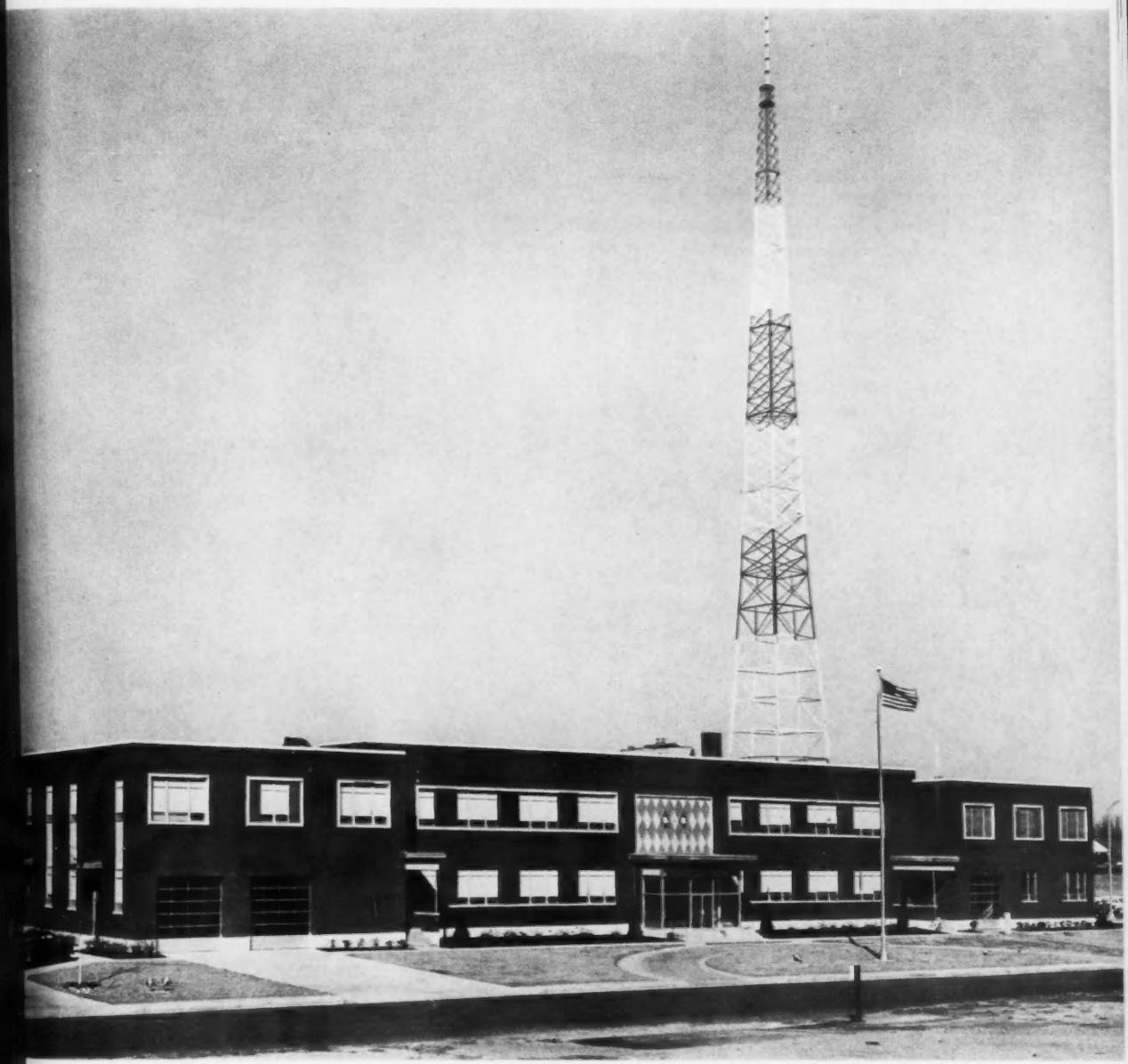

New Training and Communications Center in Memphis — *see page 10*

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UNIQUE TELEPHONE ALERTING SYSTEM › Page 16

RCAF FIRE FIGHTERS' COMPETITION › › Page 18

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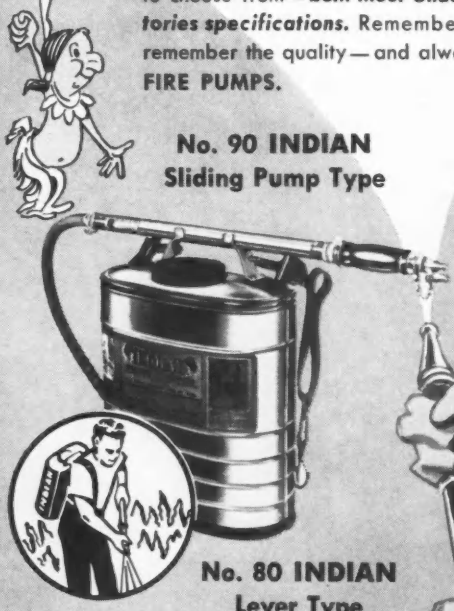

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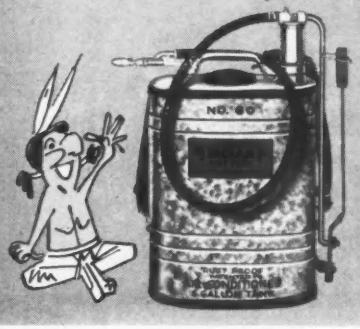

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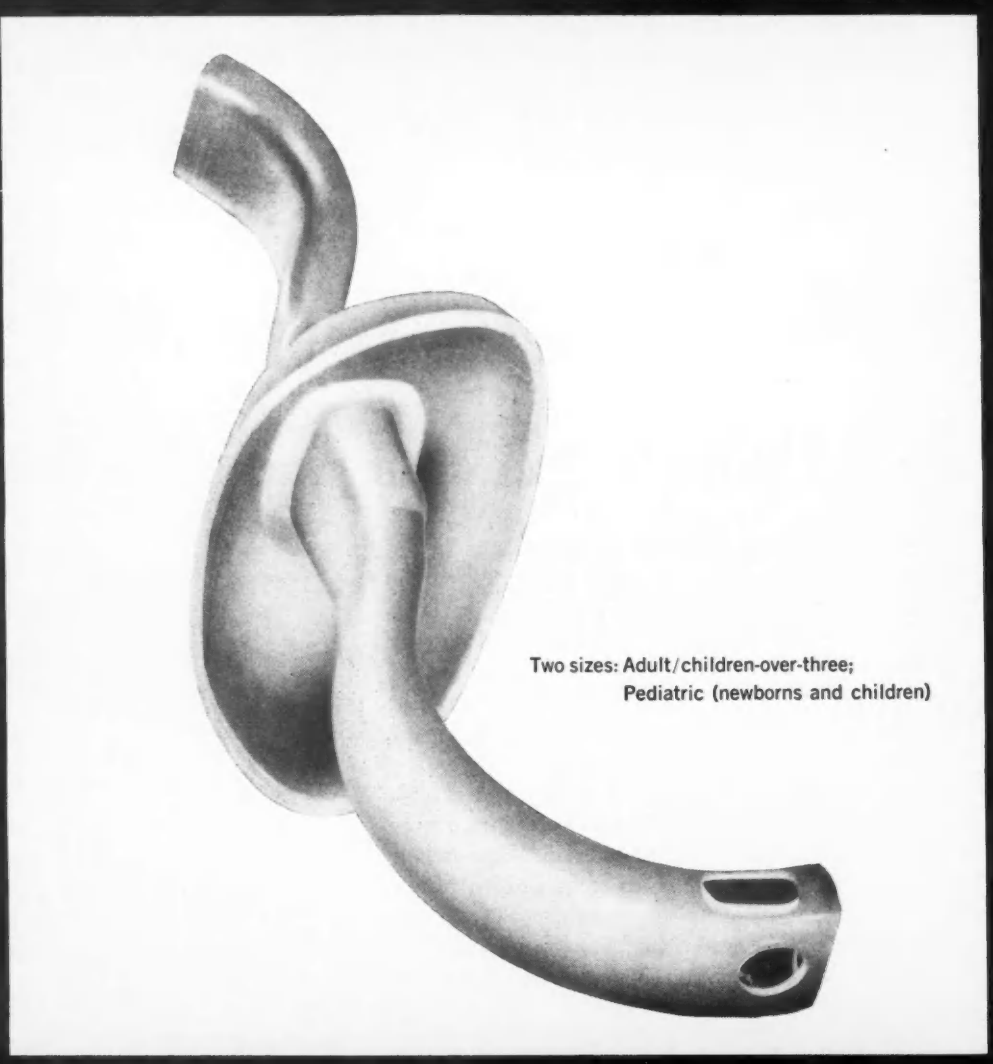

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(1) Safar, P., and McMahon, M.: Mouth-to-Airway Emergency Artificial Respiration, J.A.M.A. **166**:1459 (March 22) 1958. (2) Safar, P.: Mouth-to-Airway, Anesthesiology **18**:904 (Nov.-Dec.) 1957. (3) Safar, P.; Escarraga, L. A., and Elam, J. O.: A Comparison of the Mouth-to-Mouth and Mouth-to-Airway Methods of Artificial Respiration with the Chest-Pressure Arm-Lift Methods, New England J. Med. **258**:671 (April 3) 1958. (4) Gordon, A. S.; Frye, C. W.; Gittelson, L.; Sadove, M. S., and Beattie, E. J., Jr.: Mouth-to-Mouth versus Manual Artificial Respiration for Children and Adults, J.A.M.A. **167**:320 (May 17) 1958. (5) Elam, J. O.; Greene, D. G.; Brown, E. S., and Clements, J. A.: Oxygen and Carbon Dioxide Exchange and Energy Cost of Expired Air Resuscitation, J.A.M.A. **167**:328 (May 17) 1958. (6) Safar, P.: Ventilatory Efficacy of Mouth-to-Mouth Artificial Respiration, J.A.M.A. **167**:335 (May 17) 1958.

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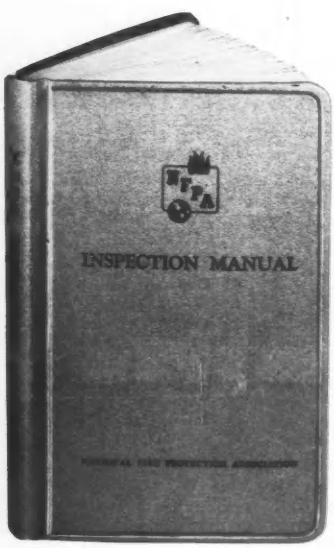

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A monthly magazine published for the fire service members of the National Fire Protection Association, 60 Batterymarch Street, Boston 10, Massachusetts.

Volume 26 • Number 4

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Give some extra attention to the forthcoming April, 1959 issue of the NFPA *Quarterly*. It features the annual study made by the NFPA Fire Record Department of large loss fires and has some surprising but welcome statistics.

For example, during the past year in the United States and Canada there was a *drop* of 16 per cent in the number of large loss fires, compared to the number of similar fires in the preceding year (1957). Large loss church fires toppled from 15 in 1957 to 4 in 1958. Industrial large loss fires dropped from 125 to 85. Similarly, big fires in storage and residential occupancies had a decrease — from 55 to 43 and 17 to 10 respectively. Overall, the number of large loss fires in all studied occupancies dropped from 340 in 1957 to 295 in 1958.

In only one category was there an increase. Large loss fires in mercantile occupancies rose to 81, compared with the 58 of the preceding year. Here, perhaps, is a trend that demands special action by the fire service in its year-round inspection and educational programs.

These are only a few of the essentials in this important fire study — a product of months of research by Manager Chester I. Babcock and Engineer Rexford Wilson of the NFPA Fire Record Department. There will be many other facts and some important conclusions on this subject in the April *Quarterly*. At the moment, reprinting of the article is not planned, so we suggest that NFPA member fire departments retain this particular copy of the *Quarterly* for permanent reference.

●

Time to make plans for the 63rd Annual Meeting of the NFPA, scheduled for Atlantic City, New Jersey, June 1–5. The Hotels Dennis and Shelburne will be joint headquarters and various sessions of the meeting will be held in each building. Other hotels and motels are close by.

As in previous years, fire department officers and men in uniform will be admitted to the general sessions without being charged the registration fee. The Annual Meeting presents a splendid opportunity for fire service members to meet and exchange ideas and to learn what is being done to improve life safety throughout North America. In addition, these annual meetings of the Association bring out so many new, vitally important developments in the field of fire protection that fire service personnel who attend are sure to bring home some valuable information for the improvement of their own fire departments and communities.

●

The splendid new training and communications center, dedicated in February in Memphis, Tennessee, is shown on this month's cover. Built at a cost of 2½-million dollars, the center is a significant step of progress for a major municipality. For more details see page 10 of this issue. (*Cover photo by Memphis Fire Department.*)

On Wednesday afternoon, Memphis fire fighters demonstrated their techniques and equipment in handling fire involving five closely packed single frame dwellings. The entire attack was done with fog nozzles on hand lines with a water tower standing by to provide protection for exposures. In this operation the department demonstrated its new hose wagon which carries 2,000 ft. of 3-in. hose. White house in picture above was coated with a fire-retardant paint made by Vimasco Corporation and subjected here to severe fire conditions.

Rear view of involved structures showing conditions when first apparatus responded. Memphis fire fighters used special pipes on hand lines fitted with 2½-in. fog nozzles. Made in the department's shop, these pipes permit two to four men to retain good control of a nozzle under pressure.

Water tower fed by six 3-in. lines was not used for direct fire attack but simply cooled overhead wires and exposed structures.

31ST FDIC IN MEMPHIS

Spectacular demonstrations, a fast-moving program, and an attendance smashing all previous records mark another successful Fire Department Instructors' Conference.

A RECORD-BREAKING 2,351 members of the fire service and other guests registered for the 31st Fire Department Instructors' Conference in Memphis, Tennessee, February 24–27. This was also the 25th consecutive year in which the Conference has been held in that City and the well-planned and coordinated four-day program had just the right polish for a Silver Anniversary.

Once again the officers and men of Chief John C. Klinck's fire department rendered outstanding hospitality and service. Each noon they served luncheon within minutes to the record number of conference guests. In addition, they provided transportation to the various fire stations, demonstrated Memphis apparatus and equipment, and otherwise reflected the courtesy that is so much a part of a Southern "welcome."

Handling the major role of presiding over the four-day conference was Emmett T. Cox, Senior Field Officer, Fire Prevention Department, Western Actuarial Bureau, Chicago, who this year served as conference co-chairman with Chief Klinck. As in previous years, the conference was sponsored by the Memphis Fire Department, Western Actuarial Bureau and the Memphis Chamber of Commerce.

Here is the "house in the middle" after fire was extinguished. Note close exposure to adjacent dwellings. Initially, fire started in unprotected roof section of this structure and spread to front porch but was knocked down easily with a single line. Except for this, painted portion of structure showed good resistance to radiant heat.

The popular question box panels were featured in three morning sessions. This panel featured H. T. Johnson, Assistant Manager, Illinois Inspection Bureau, Chicago; Battalion Chief James R. Kerr, Portland, Oregon; State Fire Instructo· Bruce H. Wilson, Lincoln, Nebraska; John N. Cardoulis, Director, Fire Prevention, Hq. 64th Air Division, Newfoundland; and D. B. Baird, Assistant Director, Fire Protection Engineering Department, Canadian Underwriters' Association, Montreal.

On Sunday, February 22, the fire service members and guests had the chance to take part in the dedication of the brand new Claude A. Armour Fire and Police Academy. Built at a cost of two and one-half million dollars, the academy brings excellent new training and administration facilities to the two departments (see pages 10, 11 and 12).

Actually, the 31st FDIC program began on Tuesday, February 24. One of the first items was a moving tribute to the late Richard E. Vernor, formerly of the Western Actuarial Bureau and former chairman of the NFPA Board of Directors who had presided over the FDIC since it first began in Memphis. Robert F. Hamm, of the Indiana Rating Bureau and the NFPA Committee on Fire Service Training, delivered the eulogy.

(Left) Maryland Governor J. Millard Tawes, past president of the Maryland State Firemen's Association was a luncheon speaker on Thursday. He is shown with conference co-chairman Emmett T. Cox (right).

As outlined in the January issue of FIREMEN magazine, the conference also featured a balanced selection of significant topics of interest to the fire service, covered by individual speakers, panels and demonstrations. In addition, each luncheon had a guest speaker with Chief Klinck and Claude Armour, Vice-Mayor and Commissioner of Fire and Police, alternating as presiding officers. Luncheon speakers included the Hon. Clifford Davis, Tennessee congressman (who was on the first FDIC program in Memphis); Walter P. Halstead, President, United States Civil Defense Council, Minneapolis, Minnesota; and the Hon. J. Millard Tawes, Governor of the State of Maryland and past president of the Maryland Volunteer Firemen's Association.

As usual, one of the best items on the program was reserved to the last. This year it was an outstanding report on the disastrous Chicago school fire given by Dale K. Auck, Director, Fire Protection Federation of

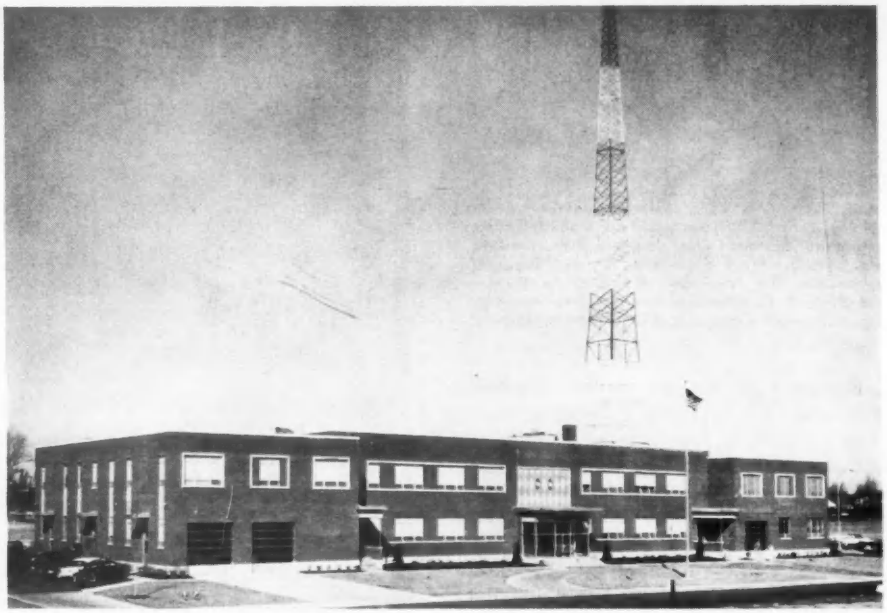
Spectacular demonstrations of the hazardous nature of liquefied oxygen and metals and other rocket fuels were presented by a group under the direction of Fire Chief C. A. Harryman, Aro, Inc., Tullahoma, Tennessee. The ease of ignition of these fuels and the difficulties in extinguishing them were brought out in a number of similar incidents.

At one of the luncheons Chief Klinck received this beautiful trophy from Kent Parker, Manager, Western Actuarial Bureau, as Commissioner Armour (right) looks on.

Mutual Fire Insurance Companies in Chicago. He had served as a member of the coroner's jury that investigated the fire and, for the conference, he presented slides and detailed explanations of the significant aspects of that disastrous incident.

On Friday afternoon, the conference closed with the 1959 FDIC Follies, a one-hour stage show produced by District Chief Robert Maynard of the Memphis Fire Department.

Thursday's "question box" panel brought answers from this group (left to right) R. Kenneth Scott, Chief Engineer, North Carolina Rating Bureau; Lyle L. Goodrich, Supervisor, Washington State Firemen's Training program; C. M. Davis, Chief, U. S. N. Amphibious Base, Little Creek, Norfolk, Virginia; Chief C. A. Williams, Celanese Corporation of America, Rock Hill, South Carolina; Chief L. J. Wagner, North Miami, Florida; and Deputy State Fire Marshal Howard V. Dees, Decatur, Alabama.



Front view of new fire and police academy in Memphis, Tennessee. Fire department facilities occupy left part of building, police facilities are on right. Radio tower, used by both departments, is over 200 feet high.

MEMPHIS BUILDS A 2½-MILLION DOLLAR ACADEMY!

We are indebted to Chief John C. Klinck and Deputy Chief E. P. Lovell for the illustrations and information used for this article.

Fire and police training, administration and communications facilities are brought together in modern structures. Latest training devices, 18-acre grounds, and new communications and alarm center mark a major step forward for a progressive fire department.

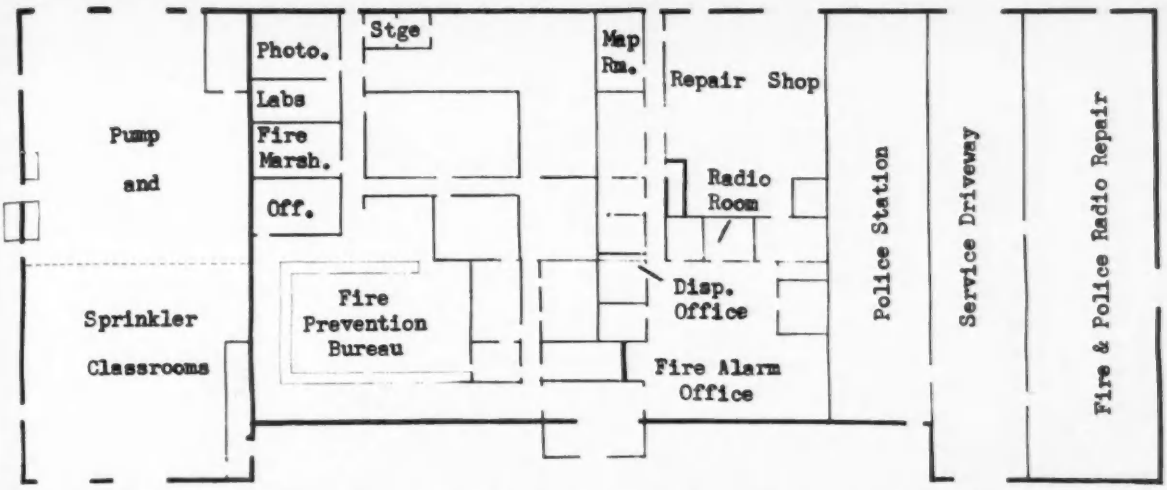
MEMPHIS, Tennessee, gateway to the north, south, east and west of the United States, once again commands the attention of the fire service! Already renowned for hosting the Fire Department Instructors' Conference (preceding pages) and for excelling year after year in fire prevention and fire department operations, this city is now completing a magnificent new academy that should be an inspiration to every municipality.

Named in honor of the city's Vice-Mayor and Fire and Police Commissioner, the "Claude A. Armour Fire and Police Training and Communications Center" is located on an 18-acre site, practically in the center of Memphis. Right now, the main building and the fire training building have been completed, about four acres have been paved and landscaped, eight additional acres are under contract for paving, and the remainder is to be completed during 1959–60. Altogether, the center and training grounds will cost the city two and one-half million dollars.

Main Building

The principal building is about 250 ft. long, 90 to 100 ft. deep, and is constructed of reinforced concrete frame and concrete block panel walls. About 60 per cent of the roofing area is also concrete but the roof deck over classrooms is corrugated steel deck on bar joists. The roof is surfaced with tar and gravel over a vapor barrier. Outside walls are brick-faced and the floors are reinforced concrete. In this structure are the fire and police communications and alarm systems, training divisions, and the Fire Prevention Bureau. The police department also maintains a sub-station. Both municipal departments have appropriate space in the building so that their distinctive administration and training operations can be conducted smoothly.

The fire department occupies approximately 28,700 square feet in the building. The Fire Alarm Division has 4,500 square feet, the Fire Prevention Bureau has 6,840 square feet and the Training Division takes up a total of 17,380 square feet.



Sketch of ground floor of new Memphis training and communications center, showing major offices of fire and police departments. Rectangle at left of pump classroom is pump test pit that can be used inside and outside of building. (Scale — 1 inch equals approximately 36 feet.)

The basement of the building has a boiler room for heating and air conditioning equipment, an auxiliary generator and also a cable vault for the fire alarm office.

Other offices and areas belonging to the fire department are explained with illustrations on these pages.

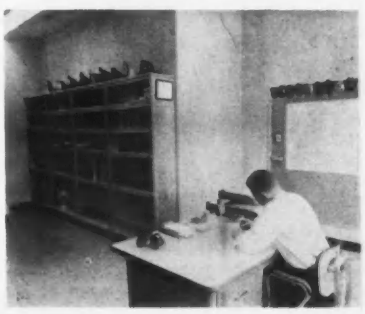
Fire Training Area

In the back of the new academy is an open, level area of about 14 acres with the new fire training building. Chief John C. Klinck and other Memphis fire officers gave a great deal of consideration to the design of this structure after visiting and studying facilities at state training schools and other municipal fire departments and making adaptations compatible with Memphis buildings. This new building consists of a five-story drill tower and a 2½-story structure designed for numerous kinds of fire training and fire fighting problems. The 51-foot high tower has brick walls, concrete floors, and a roof deck. It contains an enclosed stairway, has standpipes and sprinklers on each floor and a chimney which can be used to smoke up any or all floors. There is an outside fire escape and also a safety net. On the north side of the tower is a complicated set-up of simulated overhead transmission lines which will be used for realistic training in aerial ladder operation.

The fire fighting building has a full basement, first and second floors, a 3-ft. cockloft, and an attic with a pitched roof. It is made of reinforced concrete frame with outer walls of brick panels. One half-inch air space separates outside and inner walls. The latter are made of fire brick covered with a 1½-in. coating of calcium aluminate cement. All floors, ceilings and inside partition walls of this building have the same coating. Inside partition walls are fire brick, similarly coated, to withstand the heat of various types of fires that will be used in the structure. The rear of the building has parapeted walls to facilitate training in ground ladder operations. Different types of windows and doors have been installed to duplicate conditions that Memphis fire fighters will encounter in the various types of structures in the city. (*Continued on page 12*)

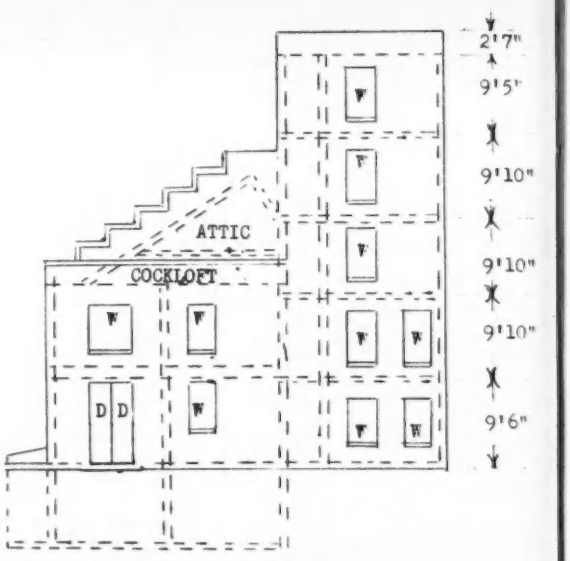
(Right) Fire department radio dispatcher has a small room next to telephone switchboards and main fire alarm office.

The Training Division headed by Drillmaster C. L. Scott has produced some excellent booklets and informative bulletins explaining fire department operational procedures. Duplicating facilities used by the Division are now located in this room in the new academy.



Part of the Research Division facilities includes this reference library on fire fighting and fire protection.

Fire training building showing drill tower, parapets, fire escapes, collapsible net and, at right, overhead wires for aerial ladder training. Note variety of windows, lights for night training, post indicator valves, and standpipe connections on tower.



Sketch of one view of fire training building, showing parapets, basement and other features. Doors and windows are of different types found in various structures in the city. Pitched-roof attic and 3-foot deep cockloft add variety to fire fighting problems.

When paving and landscaping on the exterior grounds have been completed, there will be plenty of room for a driver training course and for other operations requiring the handling of apparatus. Pumpers can be tested or operated at the rear of the main academy building where a drafting pit is located (see photo).

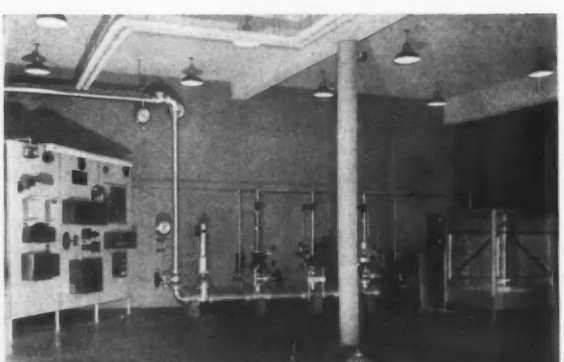
What the Center Means to Memphis

For the Memphis Fire Department, the new center means a valuable consolidation of operations that will serve for many years ahead. Here the complete span of training operations from classroom study to fire ground evolutions can be conducted by the Training Division under Drillmaster C. L. Scott. Individual fire fighters, pump operators and entire fire companies can be put through a variety of training assignments simultaneously, a feature that is certain to produce maximum fire fighting skill and teamwork.

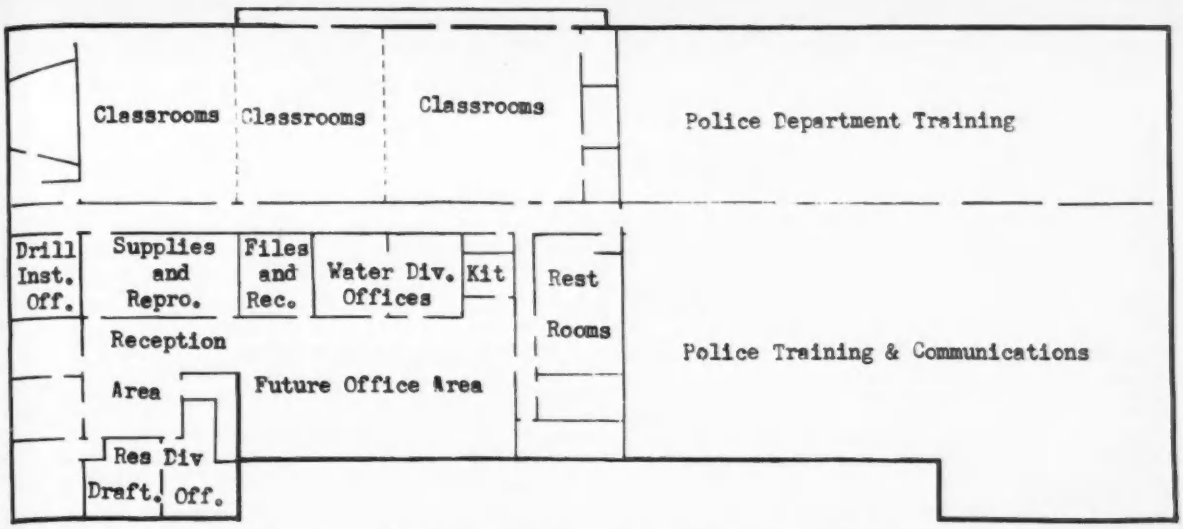
In taking promotional examinations, Memphis fire fighters are tested on their knowledge of major buildings in the city, that is, the fire protection installations and deficiencies and the preplanned operations of the department in responding to alarms for these occupancies. Significant weight is given to this portion of the examinations, so the Training Division from time to time issues bulletins covering this information. The new Research Division offices and duplicating facilities will facilitate this form of departmental education.

The pump and sprinkler classroom on the ground floor is of special interest. Here the local office of the American District Telegraph Company installed a panel board, duplicating all of the various ADT protection and alarm devices used in the city of Memphis. To the right of this panel are post indicator and wet sprinkler valves equipped with ADT alarm devices. The installation continues with dry and pre-action sprinkler valves and the sprinkler system ends in a tight, glass demonstration case. Here are a sprinkler head and heat actuator which men in training can watch as the complete sequence of detection, alarm and sprinkler operation is set into motion. The well-planned layout not only gives fire fighters a chance to see the system in operation but through actual operation of the valves and other component parts of the system, they can develop routines for handling similar equipment where it is installed in buildings in the city.

The new Fire Alarm Office in the building has a two position PBX board and an alarm dispatch control board, used to control movements of apparatus and maintain constant communication with all fire department units. Adjacent to this area is the fire department radio dispatch room soon to feature a new



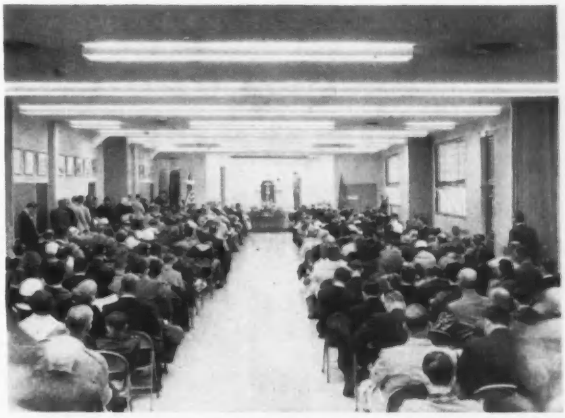
Ground floor of Academy features a complete ADT and sprinkler system, large apparatus room, hydrants and a pump test pit.



Sketch of second floor of new center. Area marked "classrooms" in back is large auditorium shown in photo at lower right. Approximately 1,000 persons can be seated in this well-lighted room. Capacity is somewhat less when desk-type chairs are used for classroom instruction. (Scale — 1 inch equals approximately 36 feet.)

radio transmission system. Another important item in the fire alarm office is the duty board which shows where every man in the department is at all times (see photo). Under Chief Klinck, the department has 501 members, of which 463 are fire fighters. There are 23 pumper companies, 8 ladder companies, 2 pumper-ladder companies, a squad-rescue unit and a water tower.

The Fire Prevention Bureau, with a 16-man staff under Deputy Chief E. P. Lovell, also has ample space for operations of inspectors and investigators and routine administrative work. In addition to the large office area in front of the building, the Bureau has a conference room, photography laboratories, the fire marshal's office, and storage space.



Part of the crowd that attended the dedication ceremonies on Sunday. This auditorium of the Academy can hold about 1,000 seated persons and can be divided into three separate classrooms merely by closing accordion partitions. Stage is of ample size for lectures, demonstrations, use of motion pictures, slide projection, etc.

Telephone switchboards of fire alarm office. Large board at left has map of city showing location of fire stations, apparatus and equipment, assignments for multiple alarm, staff officers and other vital information. In background at right center is a personnel board which shows the location of every man in the department, whether on duty, off duty, sick, on vacation or otherwise occupied. Main part of fire alarm office is at left of area shown in this picture.

Memphis fire prevention bureau will be located in this large well-lighted office at the new academy. Just down the hall is the equally attractive alarm and dispatch center which replaces the old facilities behind headquarters.

ALASKA

the 49th State

Since publication of the March issue of FIREMEN magazine which featured an article on Alaska, then the newest state, the editors received the following reports from other NFPA member fire departments in our 49th state. More unique and interesting problems faced by our northern neighbors are highlighted on the following pages.

Spenard's Engine No. 5 is shown on its first run drilling in front of the Anchorage High School, one of five schools in the Anchorage Independent School District that is given fire protection and thoroughly inspected twice a year by the Spenard Fire Department.

A Report from SPENARD

Chief Kenneth Fisher describes the activities and area served by his department.

THE Spenard Volunteer Fire Department was organized in 1950, incorporated in 1951 and was originally sponsored by the Spenard Lions Club. The department answered its first fire call on September 29, 1951 with all ten of its volunteers responding. At that time the department operated with one panel truck with a high-pressure pump and booster tank, housed in a small garage donated by former Chief Harry Andrews.

At the present time, the department has a paid chief and two paid firemen, supplemented by 26 volunteers, six of whom are on duty at the station during the night. Chief Kenneth Fisher has commanded the department since 1953.

Apparatus of the Spenard Fire Department displayed in front of Fire Headquarters includes a 750 gpm Mack pumper, a 1,200-gallon Studebaker tanker, another 750 gpm Mack pumper, and a Chevrolet pickup utility vehicle. In the background is station with new upstairs addition and hose tower.

Currently the department has one 500 gpm and two 750 gpm pumpers, a Studebaker 1,200-gallon tanker with a 500 gpm pump, a Chevrolet utility vehicle and a jeep. All equipment has two-way radio communications. The Greater Anchorage Area fire departments operate on the same frequency to simplify mutual aid calls.

The area which the department serves consists of approximately eleven and one-half square miles, with an estimated population of 23,000. In addition to the central location of the fire station, extensive installation of new hydrant service each year greatly improves the department's capability.

Now being constructed is an upstairs addition to the fire station which will eventually house all sleeping quarters, a recreation room and kitchen, leaving room for two additional stalls for apparatus. There will also be office space for a fire prevention bureau.

The volunteers of the department attend a very thorough fire school conducted by Battalion Chief Townsend Van Norstrand, who is also an assistant fire chief at nearby Elmendorf Air Force Base. An elected Board of Directors handles the budget and is responsible for deciding the department's policy. A Board of Officers then carries out the effective operation of the department.

With an eye to the future, the Spenard Volunteer Fire Department undergoes constant training and plans an expansion program to keep pace with the rapid growth of the community and the new state.

A Report from PETERSBURG

Chief Kenneth Welde reports the highlights and activities of his volunteer fire department.

The apparatus of the Petersburg Volunteer Fire Department includes an International 500 gpm pumper, a Ford 500 gpm pumper, a Willys jeep and trailer, and a Ford 300 gpm pumper. Members of the department pictured are (left to right) Chief Driver John Jones, Donald Luhr, Ronald Norheim, Lloyd Roundtree, Assistant Chief and Driver Duke Miller, Mayor Lew Williams, Chief Kenneth Welde. Seated in trucks are Ted Hasbrouck (second from left), Jack Stephens, Ben Baker and Robert Schwartz.

THE town of Petersburg was incorporated in April, 1910, and in January of the following year its fire department was organized. The first equipment consisted of two-wheel carts to carry hose and buckets. The first water system was installed shortly after and kept expanding as the town grew.

Today the town has a population of 1,600 and will have a new fire station housed in the Municipal Building this Spring. In the past few years, about half of Petersburg's streets and water mains were replaced by the Alaska Public Works Administration. The mains were changed from the original 4-in. to 6- and 8-in. size with new and larger hydrants. One problem of the past was caused by water entering the hydrants through the drains after the ground froze. The Petersburg department now drains the water back to the surface and uses air to empty the hydrants.

A nine-man rescue and first-aid squad trains under the direction of Dr. R. C. Smith. Its equipment consists of an Emerson resuscitator with extensions to care for three patients at once and a chest-type and large floor-type iron lung. The department uses two Scott "Air-Paks," two "Chemox" and two canister-type masks. Last year the department purchased an air pump and spare tanks for the Scott "Air-Paks" so the squad could train more often.

Our department feels fortunate that it has not had many large fires. There were only three fire deaths in the last 25 years. The training program under the new state fire marshal has already helped Alaska's fire departments a good deal.

A Report from the FAIRVIEW FIRE DEPARTMENT

Capt. Harriss Darby, a former newspaper photographer, reports the activities and problems of this volunteer fire department in Anchorage.

THE Fairview Volunteer Fire Department officially began on March 14, 1945 with six men. Robert Brunick, one of the two men who responded to the first call that day, is now assistant chief in charge of operations and one of three paid fire fighters employed full time. The department first operated from a small annex of the Anchorage bus company but is now located in the center of the high value district of Fairview.

Headquarters of the Fairview Volunteer Fire Department house (left to right) their Ford ambulance, a 750 gpm Seagrave pumper, a 750 gpm LaFrance pumper, a Chevrolet hose truck, and a Ford hose truck and pumper.

Harold Dole has been chief for three years and is a nonpaid volunteer.

The department has a contract with the Fairview Public Utility District Board to supply the area with fire protection and also maintains a mutual aid agreement with all surrounding fire departments including Elmendorf Air Force Base, Fort Richardson, the Army Base, the City of Anchorage, and the Spenard Fire District.

A major activity of the department is the operation of the rescue wagon. Greater Anchorage has a population of over 60,000 civilians and 40,000 military persons and with the exception of the military, only two ambulances handle these people. One is the "Little Red Wagon" of the Anchorage Fire Department which was donated by the Lions Club; the other was donated at actual cost by Westward Motors. From the firemen's fund raised at dances and benefits, the ambulance was equipped with full first-aid equipment and a new resuscitator. All members of the department have taken beginning and advanced first-aid training classes from the local civil defense instructor.

With an annual budget of $32,000 the department

bought turnout clothes for almost all fire fighters, added a kitchen and bunkroom and renovated all the equipment. The volunteers purchased a 750 gpm Seagrave pumper last year and rebuilt it as they did the 750 gpm LaFrance pumper two years ago. The Ford truck was donated by members of the department as a hose truck and pumper but a 700-gallon tank was added for mutual aid runs and booster line work. The department also bought a second-hand Chevrolet truck, then added a 700-gallon tank, over 2,000 feet of 2½-in. hose, 300 feet of 1½-in. hose, and 100 feet of booster line hose from each side on separate reels.

Each truck and station is equipped with two-way radio connecting all departments in the area. There are also gas masks on each truck.

In 1954, the Fairview Volunteer Fire Department answered 55 calls to properties of $1,503,750 value with a loss of $45,340. The most disastrous fire occurred in 1957 when there was a loss of $500,000 in the Fairview Shopping Center bringing the total for that year to $683,000. In 1958, the department answered 158 calls. It has responded to 602 fire calls and 75 to 100 calls for rescue in the last five years.

A Report from the ASSOCIATION OF ALASKAN FIRE FIGHTERS

President Boyd B. Peterson states the purposes and objectives of this new organization.

ORGANIZED on February 9, 1957, the Association of Alaskan Fire Fighters was formed to "encourage, foster, promote, and support by all legal and honorable means the betterment, advancement, and improvement of the science and profession of fire fighting and fire prevention." (Article B, *Articles of Association*, AAFF.)

Its representatives at that first meeting wanted to develop a higher understanding of the fire fighting profession and to promote greater efficiency in the fire service. They felt that through an organization of this type they would secure and be able to enforce state and national laws which would promote and further the protection of property and persons against loss and damage by fire. These same members also wanted to establish and maintain educational programs wherein persons in the field of fire fighting could train and be informed of the current technological advances in their field.

The Association works very closely with civil defense and hopes to have better fire fighting regulations passed by their new state legislators. For further information, write to Mr. T. S. Van Norstrand, Secretary, Box 2600, Star Route, Spenard, Alaska.

Coordinator of Fire Training Wanted

THE Connecticut State Department of Education has established the new position of Coordinator of Fire Training. This position is open to anyone over 18 years of age, a United States citizen, who is in good health, and who meets the following requirements.

Applicants must have a minimum of eight years of experience in the fire protection field and be at least a high school graduate. Any additional experience such as serving as a municipal fireman, fire officer or chief will be considered valuable. A Bachelor of Science degree is also an asset. It is desired that applicants have taught two courses in vocational education but that requirement may be met during the first year of employment.

Starting salary will be $5,940 and the maximum salary at the present time is $7,740. Not included in the above figures is $180 cost of living adjustment which will be payable after the first year of service.

September 1 will be the starting date of employment. All applications must be filed before May 1, the closing date for this position. Anyone interested in applying may write for additional information and applications to Richard W. Howes, Chief, Bureau of Vocational Services, Room 302, State Office Building, Hartford, Connecticut.

Annual Report, U. S. Civil Defense

THE last year of the operation of the U. S. Federal Civil Defense Administration, July 1, 1957, to June 30, 1958, has been reported by the Office of Civil and Defense Mobilization with which FCDA was merged July 1, 1958. The "Annual Report of the Federal Civil Defense Administration for Fiscal Year 1958" may be obtained from the U. S. Superintendent of Documents, Washington 25, D. C. (1959, 52 pages, 20 cents).

The report notes that during the year covered, federal legislation put the responsibility for civil defense jointly in the federal government and the several states and their political subdivisions. Former legislation had vested such responsibility primarily in the states and subdivisions. This change allows the federal government to help pay essential personnel and administrative costs of state and local civil defense organizations. Such federal assistance increased a little more than 20 per cent over the previous year. The report mentions that states and localities have used much of the federal contributions for communications equipment. A large number of radiological instruments have also been distributed and stockpiled, including survey meters, dosimeters and dosimeter chargers.

During the year, the policy was adopted that a program of fallout shelters would be the best single non-military defense measure. It is observed that there is no assurance that even the deepest shelter would give protection to a sufficient number of people to justify the cost of complete protection but that there is a great potential for the saving of life by shelters which will give protection against fallout from nuclear weapons. Shelter studies are being continued. Test reports are promised on reinforced concrete dome structures, dual-purpose concrete mass shelters, family shelters, protective vaults, thermal-activated air-zero locators, pressure-sensitive valves and ventilation equipment.

UNIQUE TELEPHONE ALERT SYSTEM FOR GARDEN CITY

Henry D. Sayer, Jr., of the Garden City Fire Department, describes the recent installation and operation of this new telephone alert system that is available to fire departments.

ON DECEMBER 20, 1958, the Garden City, N. Y. Fire Department (NFPA Member) placed in service a new telephone group alerting system. It is used to transmit alarms of fire simultaneously to the 70 volunteer members of the department over their regular home telephone lines.

Garden City is a suburban community with a population of approximately 24,000. It covers somewhat more than six square miles. In this area the department maintains 3 fire stations. These are manned by a skeleton force, with 7 to 10 paid fire fighters on duty at all times. First line apparatus includes two 1,000 gpm pumpers, both equipped with booster tanks, a 750 gpm pumper, two aerial ladder trucks, a hose wagon with a 300 gallon booster tank, a combination booster and floodlight truck, and various other utility vehicles.

Membership in the volunteer department varies between 70 and 80 men who respond directly to the scene of an alarm. Until recently, the watch desk man transmitted general alarms on a coded air horn system thereby giving the volunteers the location of the emergency within a 6 to 8 block area. Under the new system, however, the dispatcher now picks up an alerting phone on the watch desk upon receipt of a fire call. This is a special instrument not used for regular telephone service. By dialing the digit 5 on this phone, he immediately starts the bells ringing simultaneously on the home telephones of all the volunteer members. A pilot light on the special phone informs the operator that this is happening. He then gives the alarm message including location, the type of fire (when known) and other pertinent information, such as the area and zone number. This message is recorded and with the flip of a switch, this recording repeats itself continuously for a three minute period. Any volunteer who picks up his telephone during this three minutes will receive the alarm.

Once the alarm has been received on any individual phone and the receiver replaced in its cradle, the phone goes back to regular service. Otherwise, it will keep ringing for the full three minute cycle. The ring, incidentally, is of a distinctive nature and cannot be confused with a normal telephone call.

If a phone is in use, the emergency call will not override the normal message. This is a matter of policy with the telephone company rather than a mechanical problem. When such a "busy" line occurs, the alert will "camp on" that line and if that telephone conversation is completed during the three minute cycle, the alert signal will immediately go through.

A monitoring system is provided for the alert phone so that the dispatcher may listen to any recording that he has made and check it for accuracy. If a mistake is found, the message may be completely erased at any time during the cycle and a correct message can be given.

No special or additional equipment is installed in any of the volunteers' homes. The entire operation is accomplished by means of rather complicated banks of relays and a special wiring setup in the Central Office of the telephone company.

Garden City at present is using the system as a supplement to the coded horn signal. There are no immediate plans for the discontinuance of the conventional alarm apparatus. However, it is possible that the use of the air horns may be discontinued in the future, at least during the night hours when they seem particularly offensive to the general public.

With this new telephone alarm system it is possible to connect 200 telephones for alarm notification. Selective alerting is also available, so that by dialing different digits, a single company or rescue squad or any other small group may be summoned. Incidentally, it is not necessary that all telephones on the circuit originate from the same Central Office.

In Garden City the system has also been extended to the home of the Police Chief, the Fire Commissioner and the Water Works so that all may be alerted at any hour of the day or night in the event of fire requiring their attention.

The experience of the first three months of operation is extremely gratifying. The universal complaint that "I could not hear the horn" has been done away with. In addition, the volunteers know the exact location of the emergency before they take off from home. This should reduce the possibility of accident, since a fireman can devote his entire attention to driving rather than for looking up and down streets to locate the emergency. Furthermore, knowledge of the type of fire is also apt to be conducive to safe driving on minor fire calls. Certainly, if it is known that the call is for a well done steak, or some lint in a clothes dryer, the fireman is likely to drive more sensibly than would be the case if he did not know the nature of the emergency.

Another result of the new system is that the volunteer firemen who live close to the scene of an emergency are arriving much sooner than formerly was the case. In many instances they are there even before the apparatus. This has given the department a better working crew for the initial prompt attack that is so important. The average attendance at fires since the system has been installed has increased by about 9 men.

The effectiveness of the system was well demonstrated at one recent fire, when the correct address was given over the telephone but the wrong number was inadvertently sounded on the air horn. Over 30 firemen arrived at the correct location promptly. On one other occasion on a mutual aid call for a neighboring village, the alarm was given only over the telephone system and the normal number of men responded to man the apparatus without any delay.

RCAF FIRE FIGHTERS' COMPETITION

(Left) Snapping the hydrant for Drill Number 1. Hydrant man's face shows tension. The 2½-in. line to feed the pumper is in place, as is the hydrant gate for additional lines, if required.
RCAF photograph

RCAF fire fighters involved in good competition with full turnout clothing.

AIR Materiel Command of the Royal Canadian Air Force had a problem. Fire protection at its storage areas was of great importance due to the value of the stored materials, but as the stations were in isolated locations, a morale problem existed. With a good fire prevention program holding down the number of fires, the necessary practice drills became hardly more than sheer repetition. The need for actual fire fighting seemed remote indeed.

In an attempt to develop competition to keep up the efficiency of the departments, Command Fire Marshal P. Brown of the RCAF established a system that would allow each unit to compete with all others in the Command, and yet not require them to leave their own station for some of the units are 2,500 miles apart.

Two drills form the basis of the competition. Both require the men to start twenty feet behind the fire truck, dressed in ordinary clothing. At the starting signal they move to the truck, dress in protective clothing, start the truck and proceed with the drills. In the first layout, a hydrant to fire lay feeds the pumper and two 1½-in. lines are advanced from the pumper. Two target disks must be knocked over. In the second drill, the truck passes the targets, then lays 2½-in. lines fire to hydrant and connects to the hydrant. The correct

Feeding pressure to the two 1½-in. lines in Drill Number 1, pump operator watches nozzlemen one hundred feet ahead of truck. In background can be seen one of the RCAF's Harvards, a basic training aircraft. The fire truck, a standard RCAF triple combination, has a capacity of 840 gpm (Imperial). *RCAF photograph*

Connecting the pumper to the hydrant in Drill Number 2, calls for fast, efficient teamwork. While the hydrant man connects the "pony lengths" to the hydrant, pump operator has broken one 2½-in. line at the rear of the truck and is connecting it to a discharge port.
RCAF photograph

Here the nozzlemen in Drill Number 2 are aiming for the targets. Using "Mystery" nozzles, they are able to narrow down gradually to the straight stream necessary to reach the disks. In this drill, the distance is about 75 feet from nozzles to targets, and nozzle pressures up to 75 psi are used. *RCAF photograph*

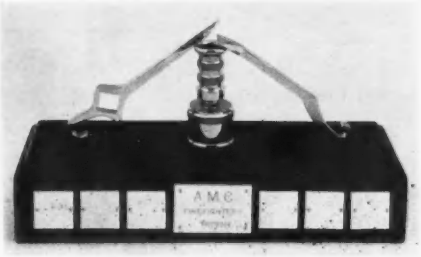
Final layout achieved by Drill Number 2. In the distance nozzlemen operate the 2½-in. lines. The Command Fire Marshal and the Station Fire Chief, having timed the drill, are moving in from the left, to check for penalties. Pump operator in foreground appears to be eyeing sadly the coupling leak at the hydrant, which will cost a one second penalty.

RCAF photograph

pumper pressure is a requirement for both drills.

By making each drill a complete exercise even to the point of dressing in protective clothing, good competition and useful practical layouts have been realized. The competition grounds are laid out by the departments and the distances checked by the Command Fire Marshal at the time of the competition.

During the summer semi-annual inspection, which is one of the duties of the Royal Canadian Air Force's Command Fire Marshals, each unit's team competes against a stop watch. The times are listed, witnessed by the unit's fire chief, then locked away until the end of the season, when all units will have competed. The team with the best time is then declared the winner and the trophy presented.



Designed for annual competition in Air Materiel Command of the Royal Canadian Air Force, this trophy is made of half-size copies of a "Mystery" nozzle, hydrant wrench and coupling spanner, mounted on a solid mahogany base. Base measures 15 by 5 by 3 inches. Year, Unit and team members' names are placed on one of the plates. Eighteen departments competed for this trophy in 1958.

RCAF photograph

The trophy itself is a work of art. It is designed specifically for this annual competition. Made of half-size copies of a spanner, a hydrant wrench and a mystery nozzle, it is highly chromed and mounted on a solid mahogany base that measures 15 by 5 inches

(*Continued on page 29*)

Rules for RCAF Fire Fighters' Competition

1. Each station and detachment fire department in Air Materiel Command shall be eligible to enter one team for competition.
2. A competing team shall consist of four fire fighters, one of whom may be the station or detachment Fire Chief. The Fire Chief may not be the driver or pump operator.
3. At the commencement of a drill the truck must be in normal operating condition, with suction caps or suction siamese on, pony lengths connected, couplings a firm hand tight, etc. No preconnection of 2½-in. lines is permitted. 1½-in. lines, however, will be connected to their regular discharge ports. In the case of G10 series, fire trucks, reducers or reducing nozzles will be preconnected to discharge ports and 1½-in. hose lines connected to them. 1½-in. nozzles will be on their respective hose lines. The engine will be shut off, with the emergency brake off and gearshift lever engaged.
4. The fire truck pump must be put into operation for both drills. By-passing of hydrant pressures direct to the hose lines will disqualify the drill.
5. Only one chance at each operation will be allowed.
6. Target disks shall be made up of 6-in. circles of plywood or tin mounted on 3-ft. wooden poles approximately 1 in. in diameter. The ends may be sharpened and forced into the ground enough to hold them upright, or a square of wood approximately 12-in. square may be fastened to the bottom of the pole.
7. Running time will be taken from the starting signal until the last target is knocked down by its corresponding stream.
8. At the start of the drill, four sets of petch coats, helmets, boots and belts plus three sets of mitts, will be placed on the fire truck. The team will take a position at a line 20 ft. to the rear of the fire truck, wearing suitable clothing. Boots or shoes will be on, with laces properly tied. At the signal to start, the crew will go to the truck, and proceed with the drill. The driver will not be required to wear mitts; all others must have them on at time of target knockdown.
9. At the cessation of each drill, each man of the team will stand by his position until checked and given all-clear by the Command Fire Marshal or his assistant.
10. The following penalty list will apply. The seconds indicated will be added to the time taken in paragraph 7:

	Subject	*Seconds*
(a)	Firecoat snap or belt undone, each	1
(b)	Helmet strap undone, each	3
(c)	Article of gear not on, each	5
(d)	Boots not pulled up, each	3
(e)	Too much hose, per length	10
(f)	Leaking coupling, each	1
(g)	No gate on hydrant in Drill No. 1, each	5
(h)	Knocking down 2 targets with one nozzle, each	30
(i)	By-passing pump	disqualification

HERE'S WHY WE "FEEL COLD"

Studies by the U. S. Army Medical Research Laboratory, Fort Knox, Kentucky, produced some interesting findings on the effects of wind chill. We are indebted to Lt. Col. Joseph R. Blair, of the U. S. Army Medical Corps, for supplying information on these studies.

ALL persons who work outdoors, especially fire fighters, should be interested in some recent studies by the U. S. Medical Research Laboratory, Fort Knox, Kentucky, on the effects of wind chill on body temperature. While the studies were made to collect data pertaining to military field operations, they also provide some general information that can be applied to other fields. For the Army, the research proved helpful in improving the prevention of cold injuries, the adequacy of clothing and basic logistical requirements such as food, fuel and shelter in areas where wind chill would be an important military factor.

For fire departments, some of the data shown on these pages may be helpful in developing good protective clothing for cold weather operation. The wind chill graph, for example, pinpoints the temperature and wind conditions in which frostbite preventive measures

WIND CHILL

(Table of Equivalent Temperatures on Exposed Flesh at Varying Wind Velocity)

Wind Velocity (miles per hour)

Temperature (Degrees Fahrenheit)	45	35	25	20	15	10	5	3	2	1	0
	90	89.5	89	88.5	88	87.7	87.5	87	86	84.5	83
	82	81	80.5	80	79.5	78	76	74	72.5	70	60
	72	71	69.5	68	67	65	60	57	53.5	47.5	23
	63	61	59	57	55	52	44.5	39	34.5	20	−11
	51	49	47	45	42.5	38	28	18.5	11	0	−27
	41	39	36	34	30.5	25	11	0	−9	−28.5 Below	−36 Below
	30	28	25	23	18	11	−5	−16.5	−40 Below	−40	−40
	20	18	14	11	6	−2	−19	−40 Below	−40	−40	−40
	10	7.5	3	0	−6	−15	−35 Below	−40	−40	−40	−40
	0	−2.5	−8	−12	−18	−29 Below	−40	−40	−40	−40	−40
	−11	−14	−18	−23	−30 Below	−40	−40	−40	−40	−40	−40
	−21	−24	−30	−35	−40	−40	−40	−40	−40	−40	−40
	−32	−35	−40	−40	—	—	—	−40	−40	−40	−40

Wind Chill

(Table of equivalent temperatures on exposed flesh at varying wind velocity.) 1. First obtain temperature and wind velocity forecast data. 2. Locate number at top corresponding to expected wind speed (or close to it). 3. Read down this column to number corresponding to expected temperature. 4. From this point follow across to right on same line until last number is reached under column marked 0 (zero) wind speed. 5. This is equivalent temperature reading. Shaded area shows example, with wind velocity at 20 mph and temperature at 35° F. Effect is same as −38° F. with no wind.

WIND (Beaufort Scale)

Beaufort Number	Limits of Velocity in m.p.h. at 33 ft. above Ground Level	Description of Wind in Forecasts	Noticeable Effect of Wind: On Land	Noticeable Effect of Wind: At Sea
0	Less than 1	Calm	Smoke rises vertically	Sea is mirror-smooth
1	1–3	Light air	Direction shown by smoke drift, but not by vanes	Small wavelets like scales, but no foam crests
2	4–7	Light breeze	Wind felt on face; leaves rustle; wind vanes moved	Waves are short and more pronounced
3	8–12	Gentle breeze	Leaves and twigs in motion. Wind extends a light flag	Crests begin to break. Foam has glassy appearance, not as yet white
4	13–18	Moderate breeze	Raises dust and loose pages and moves small branches	Waves are longer. Many whitecaps
5	19–24	Fresh breeze	Small trees in leaf begin to sway	Waves are more pronounced. White foaming crests seen everywhere
6	25–31	Strong breeze	Large branches begin to move. Telephone wires whistle	Larger waves form. Foaming crests more extensive
7	32–38	Moderate gale	Whole trees in motion	Sea heaps up. Foam begins to blow in streaks
8	39–46	Fresh gale	Twigs break off. Progress generally impeded	Waves increase visibly. Foam is blown in dense streaks

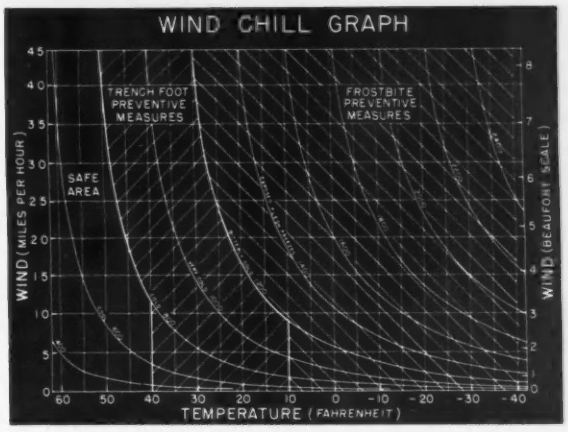
Beaufort Scale provides an easy means of judging the wind without the aid of an anemometer. If the temperature is known, the wind chill graph will show need for preventive measures against extreme chill.

are needed. The graph can be significant to fire departments in northern climates, particularly when response to alarms in cold, windy weather calls for prolonged duty. For example, pump operators who have to maintain relay operations for several hours, or men who have to operate "watch lines" after a major fire, may suffer unnecessarily from wind chill. This points out the need for warm headgear, gloves and other clothing, and replacement of those men by relief crews.

The tables also show why we experience "mean" winds in days of moderate temperatures. Even a moderate wind can cause heat loss from exposed flesh so that a person would feel much chillier than he would if there were no wind. For example, as the wind chill table

shows, when there is a temperature of 34° F. and a wind of 20 miles per hour, there is the same loss of heat from exposed flesh in one hour's time as there would be if the temperature was 38° below zero F. with no wind. In both cases, the heat loss would be approximately 1,000 kilogram-calories per square meter per hour. This does not mean that the terminal result after prolonged indefinite exposure will be the same since it is evident that the lowest temperatures obtainable in the two sets of conditions are 34° and −38° F. respectively. However, since protection against heat loss from the body is the critical item in both thermo comfort and protection against cold injury, the wind chill table is valid and helpful when used for that purpose.

Actually, research into the wind chill factors began about 15 years ago when Dr. Paul A. Siple made the original observations in Antarctica. He and Charles F. Passel first reported their findings in April, 1945. Personnel of the U. S. Army Medical Research Laboratory have adapted these data to military field operations.



Wind chill is expressed in kilogram-calories per square meter per hour for various temperatures and wind velocities. The cooling rate is based upon water at a temperature of 53° C. (91.4° F.). Under conditions of bright sunshine, cooling is reduced by about 200 calories. Expressions of relative comfort are based on person in inactive state.

LIQUEFIED PETROLEUM GASES — What They Are, What They Do

As announced in last month's issue, the University of Texas Industrial Education Department, in cooperation with the Liquefied Petroleum Gas Association, Inc., Chicago, Illinois, is producing a series of books on LP-Gas. Book I, *Information Manual*, covers a special training course for service personnel but has much information for instructors in the fire service. Excerpts from this book will be included in the next few issues of FIREMEN magazine. Copies of this instructors' guide can be purchased for $3.75 by writing to the University of Texas, Division of Extension, Industrial Education Department, Austin 12, Texas. Checks should be made payable to the University.

Part I of a Series

Meet the Hydrocarbons

LIQUEFIED petroleum gases are a part of a group of chemicals known as hydrocarbons. A hydrocarbon is a chemical which contains only the elements carbon and hydrogen. Hydrocarbons are capable of burning when the proper amount of air is present.

Otherwise, and despite the fact that they all contain the same two elements, hydrocarbons vary considerably in their nature. The gas methane, which weighs only two-thirds as much as air, is a hydrocarbon. So is gasoline. So are lubricating oils. So is the solid asphalt, used in building roads.

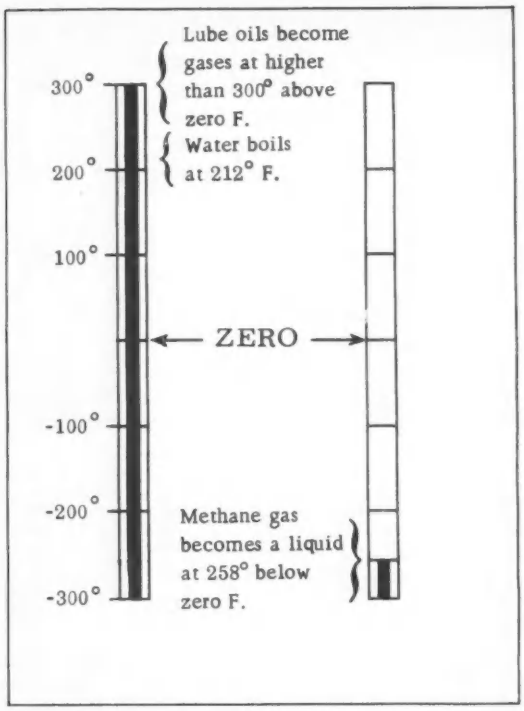
The Basic Building Blocks . . .

Like other substances, the hydrocarbons are made up of a vast number of basic building blocks — called *molecules*. Each of the molecules in a pure hydrocarbon is exactly like every other molecule in that hydrocarbon. Some idea of the size of a single molecule can be obtained from the fact that a container about the size of a cube of sugar could hold approximately 25,000,000,000,000,000,000 gas molecules.

On the other hand, heavy hydrocarbons such as paraffin and asphalt may have dozens or even hundreds of atoms in each molecule.

Nevertheless, these tiny bits of matter govern the nature — or properties — of a hydrocarbon. Differences in the properties of the hydrocarbons are determined by the number, proportion, and arrangement of carbon and hydrogen atoms making up their molecules.

The simplest of the hydrocarbons, methane gas, has one atom (or part) of carbon and four atoms (or parts) of hydrogen in each molecule. Every molecule of methane contains these carbon and hydrogen atoms.



The boiling points of various hydrocarbons vary greatly. In general, the larger the molecule the higher the temperature required to cause the change from liquid to gas.

Most of the hydrocarbons are capable of being either solids, liquids, or gases — under varying conditions. The two conditions governing the state of a hydrocarbon are temperature and pressure.

From Solid to Liquid to Gas . . .

The hydrocarbons are similar to water in that most of them can be solids, liquids, or gases. Below certain temperatures they are solids. At higher temperatures they are liquids. At still higher temperatures they boil to become a gas (or vapor).

Partly because of the difference in the number of atoms in each type of hydrocarbon molecule, there is a great difference between hydrocarbons as to the temperature at which they change from solid to liquid, or from liquid to gas. In general, the larger the molecule the higher the temperature required to cause the change from liquid to gas. For instance, such petroleum liquids as lubricating oils and light diesel oils will not boil to become gases at temperatures less than 300 degrees Fahrenheit *above* zero. On the other hand, methane gas, at normal atmospheric pressure, would have to be cooled down to a temperature of 258 degrees F. *below* zero before it could become a liquid.

Temperature helps determine whether a hydrocarbon is a solid, liquid, or gas, because it affects how far apart the molecules are. In any substance, the molecules are neither touching nor standing still. Instead, they move about. In a solid they are relatively close together and move relatively slowly. If the solid is heated the molecules move faster and tend to get farther apart as they do so. When they are far enough apart the substance "melts" to become a liquid. If the liquid is heated even more the molecules will move still faster and become even farther apart — until the liquid boils to form a gas. The process can be reversed, and as the temperature decreases the substance will change from gas to liquid to solid.

As a solid, a substance has a definite shape and size. As a liquid, it has a definite size but it can assume any shape. As a gas, the substance has neither a definite shape nor size, but can expand swiftly and almost indefinitely, or can be forced by pressure to a smaller size — even back to a liquid.

It is this fact — that pressure can make most gases become liquids — which makes it possible to store LP-Gas as a liquid in pressure containers. By exerting a force on a gas in a confined space, the gas molecules can be compressed enough to form a liquid. In addition, the pressure raises the temperature at which the LP-Gas will boil so that the hydrocarbon will remain a liquid at higher temperatures than if no pressure was exerted upon it.

LP-Gas containers hold both liquid and gas. Most outdoor temperatures will boil off some of the molecules so that they escape the liquid and form as a gas (or vapor) above the liquid. But once above the liquid the gas molecules move so swiftly that they exert a force on both container and liquid. The force on the liquid is great enough to make it difficult for additional molecules to escape the liquid. To make a "getaway" the molecules of the liquid would have to move faster than if they had no pressure pushing against them. For this reason, a higher temperature is required to boil a liquid confined under pressure than is required to boil a liquid open to the air. If the pressure on a liquid is increased, the temperature at which the liquid will boil is also increased.

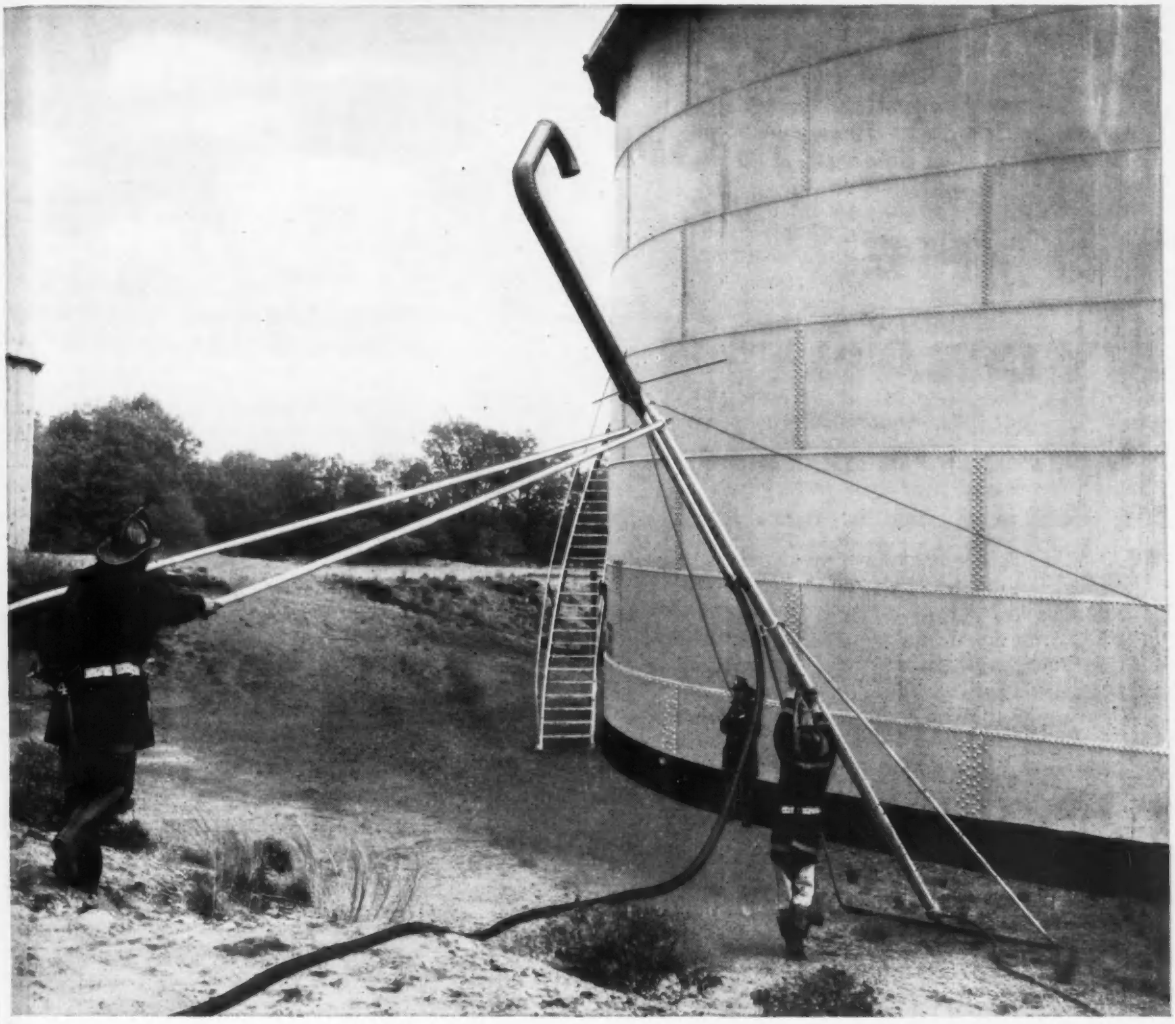
Boiling Points of the Hydrocarbons . . .

When several hydrocarbons are arranged along a scale according to the temperatures at which they change from a liquid to a gas (their boiling points), it can be seen why only certain petroleum products are suitable for use as LP-Gases. Some hydrocarbons are normally liquids which cannot be boiled into a gas at a practical temperature, so although they can be easily transported in the liquid form, they cannot be easily changed into the form of gas for burning. Other hydrocarbons are normally gases which cannot be converted into liquid form at a practical temperature and pressure, so they cannot be easily transported as liquids.

Only certain petroleum products combine all three features necessary for an LP-Gas:

1) They can be burned.
2) By the application of moderate pressure they can be liquefied and kept in liquid form at most outdoor temperatures.
3) They are gases at most outdoor temperatures — excluding only low winter temperatures — so they usually can be changed into gases simply by reducing the pressure on them.

Because they have these properties, the hydrocarbons which are known as LP-Gas have made the conveniences of natural gas available "beyond the gas mains."



Rockwood Sure Shot Portable Telescopic FOAM Towers put you in a position to put out tank fires fast!

Lightweight! The tower columns, braces, and gin poles are made of lightweight, high strength aluminum alloys. Even the largest of the 4 towers (67') can be carried, fully assembled, to the erecting position by only 3 men. A crew of 5 can erect a tower and place a FOAM head in position in 5 minutes.

Hydraulically Operated! The FOAM tower column consists of a telescoping hydraulic ram that is elevated by water pressure. For extreme cold weather operation, a hydraulic kit is available that permits raising the tower by means of carbon dioxide or nitrogen pressure.

One Tower Places as Many as 4 Outlets! One tower puts several FOAM discharge outlets into position — making the Rockwood tower the equivalent of many conventional foam towers! A crew of 5 men can erect and install 4 FOAM heads in 17 minutes. And one tower can be used to place chemical foam outlets as well as mechanical foam types!

Minimum Care and Storage! The tower sections consist of three or four section hydraulic rams made of rust-proof aluminum. The lower tube has a heavy wall section to prevent physical damage. Towers retract to 20 ft. or less for ease in carrying on a fire truck or trailer.

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City.....*Zone*.....*State*.....

WHAT TYPE CONNECTION TO THE HYDRANT?

by Warren Y. Kimball

MANY fire fighters may have wondered what results might be obtained when different types of hook-ups are used with a given hydrant and pumper. How does the 2½-in. gated intake on a pump compare with the large suction port in efficiency? How much water can be supplied through the 2½-in. gated intake? Will a second supply line make much difference?

All of these can be calculated, but the typical fire fighter is a man of action and likes to be shown. Recently, Chief Instructor Ralph L. Ellenwood of the Fort Wayne, Indiana, Fire Department, a member of the NFPA Committee on Fire Service Training, experimented with such types of hydrant-to-pump connections in the drill yard. This hydrant has a static pressure of 65 psi and flows 1,160 gpm.

Chief Ellenwood selected three pumpers, one 1,000 gpm rotary (positive displacement pump) and two 1,000 gpm centrifugals. Each was connected to the plug in six different ways using 2½-in. hose. The findings were surprisingly uniform.

The 2½-in. gated inlet provided a much more limited supply than when the same supply line or lines were run directly into the 4½-in. intake. Siamesing a second 2½-in. supply line into the 2½-in. inlet was scarcely worth the effort, as the single line provided about all the water the 2½-in. connection could handle. As might be expected, the best flows from a single 2½-in. line were obtained with a short hose directly into the 4½-in. pump inlet. With each pump this provided enough water for three 2½-in. discharge lines. The 12-ft. section of 2½-in. hose averaged 192 gpm more than a 50-ft. section hooked up in the same manner. (From this it would appear that a 12- to 15-ft. section of 3-in. hose fitted with 4½-in. hydrant and pumper connections should have provided better than 1,000 gpm from this hydrant.)

Connecting the 2½-in. supply line to the 4½-in. inlet rather than the 2½-in. inlet provided an average of better than 200 more gpm with the same supply hose. This indicates that the 2½-in. inlets restrict the supply, probably because the piping to the pump is inadequate to handle the full supply. This is also shown by the fact that the short 2½-in. supply line did not give much advantage over the 50-ft. supply line when connected to the 2½-in. inlet, but provided much greater flow when connected to the 4½-in. inlet. Apparently the capacity of the 2½-in. connection is the restricting factor.

Suggestion has been made to the NFPA Committee on Fire Department Equipment that pumper specifications should include minimum flow requirements for the 2½-in. inlets at a specified entrance pressure. The best results in Chief Ellenwood's tests were obtained when both the 4½-in. and 2½-in. inlets were used.

Supplying Pumpers with 2½-inch Hose
(From 1,160 gpm hydrant — 65 psi static)

Test No.	Test Layout	1000 GPM Rotary	1000 GPM Centrifugal	1000 GPM Centrifugal	Average of Three Pumpers
1	1 — 50 ft. to 2½-in. gated intake	425	530	530	496
2	2 — 50 ft. siamesed into 2½-in. gated intake	465	590	610	555
3	1 — 50 ft. to 4½-in. intake	575	575	595	582
4	1 — 50 ft. to 4½-in. intake and 1 — 50 ft. to 2½-in. intake	855	885	900	880
5	1 — 12 ft. to 2½-in. gated intake	456	610	605	568
6	1 — 12 ft. to 4½-in. intake	735	800	785	773

Tests in Fort Wayne

(Left) Here are the results of the tests conducted with three pumpers in the Fort Wayne drill yard. The restricting effect of the 2½-in. gated inlet is apparent in Tests 1, 2 and 5, when compared with the results of using the 4½-in. inlet in Tests 3 and 6. Even the short length of 2½-in. hose used in Test 5 did not give much advantage when connected to a 2½-in. inlet, but led to much greater intake when connected to a 4½-in. inlet.

NEW

NEW External Check Valve prevents moist exhaled air from entering the canister. Seals out moisture when mask is in storage. Closes automatically after inhalation. Threads at both ends permit easy, positive connection between canister and breathing tube.

These 3 improvements in M-S-A "All-Service"® Gas Masks provide a new standard in wearer-confidence and lower canister operating costs

New M-S-A Model "S" All-Service Gas Masks now employ three of the most modern scientific safeguards for general respiratory protection. The brief captions tell how these new features work to provide built-in safety factors and help avoid the expense of *premature* canister replacement. You'll find them profitable reading.

MSA also furnishes handy conversion kits to convert older model M-S-A All-Service Masks to the new type. Ask the MSA man for a demonstration, or write us for descriptive literature.

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M-S-A® ALL-SERVICE Model "S"
WINDOW-CATOR® CANISTER
UNIVERSAL GAS MASK CANISTER
BUREAU OF MINES APPROVED
See Approval Label On Reverse Side
This INDICATOR section changes color
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U. S. Patents 2,337,
1. THIS WINDOW INDICATOR APPLIES
TECTION AFFORDED AGAINST CARBON MO
2. DISCARD CANISTER when color of any
CATOR SECTION approaches the color of the REFERENCE SECTION. Never use canister when INDICATOR SECTION is pink or less blue than REFERENCE SECTION.
IMPORTANT INFORMATION—READ CAREFULLY
Comparison of the colors of the INDICATOR and REFERENCE sections should be made, when practicable, in daylight or under daylight-type lamps. Light from incandescent light bulbs and battery-operated cap lamps accentuates the blue color of the INDICATOR section. Canisters observed under these lighting conditions should be discarded when the color of the INDICATOR section is still somewhat bluer than that of the REFERENCE section.
This Side of Canister Should Face Outward
Discarded—
Minutes
Remarks
APPLIANCES CO.
Pittsburgh 8, Pa.
*Trademark
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NEW Window-Cator Canister is approved by U.S. Bureau of Mines. Contains a window with two color panels which tell you when the canister is or is not effective against carbon monoxide. This enables you to eliminate the timer and avoid premature canister replacement.

New Model "S" All-Service Gas Mask, complete with Window-Cator Canister, External Check Valve and M-S-A Cleartone Speaking Diaphragm gives fire-fighters an extra measure of confidence in emergencies. Extra large lenses assure unobscured vision.

W Plastic-coated Tape Seal can be re-ed quickly and easily when mask goes into ice. Can be replaced repeatedly in bottom anister when mask is in storage. Helps pre-e the canister when not in use.

Why Mass Fire Deaths?

Excerpt from an article by F. W. (Bill) Nelson and Keith Royer in the February, 1959, issue of *Fire Service Information*.

FROM time to time mass fire deaths occur in public buildings such as dance halls, night clubs, hotels hospitals and schools. A fire starts under the right circumstances, heat and smoke spread rapidly, people are trapped and killed. Whether they are burned, smothered or trampled makes little difference. The causes and results are the same.

Following each incident headlines scream "HOW?" and "WHY?" Sub-paragraphs make excuses for those responsible, and a wave of trash inspections sweeps similar occupancies across the country.

Following the general cleanup, and a few constructive changes, we relax to await the next holocaust. The building corrections are, of course, a net gain in fire safety, but too often these corrections are misguided or the "boat is missed" entirely. Quite often the extra effort will all be directed toward fire prevention.

Principles of Fire Safety

Buildings can be constructed or altered to provide fire safety for the occupants. Measures which will allow time and a place to escape from a building are not too costly, except where they may be confused with fire protection measures designed to prevent destruction of the building or parts of the building by fire.

The principles which cause mass deaths in buildings are the same as those which keep the fire going in the furnace: some fuel, a good air supply to the fuel, and a way for the smoke and heat to escape from the combustion area.

The amount of fuel needed to supply this vicious circle is relatively small. An 8-ft. Christmas tree with its quota of decorations and packages will do nicely as long as there is a good flow of air, to and away from the fire area.

It is a well-known but little remembered fact that regardless of the kind or type of fuel supply, the amount of heat produced by a fire is directly dependent on the amount of air that gets to the fire.

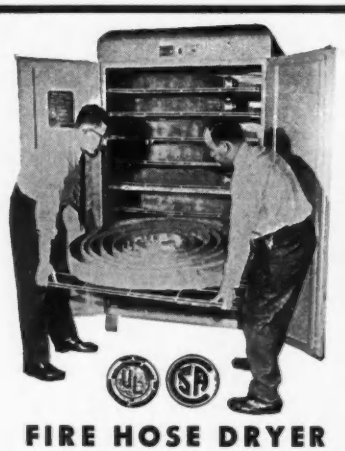
The example of the Christmas tree would represent about 100 pounds of ordinary combustible material. Twenty orange crates would weigh about the same.

When enough air is supplied to completely burn this 100 pounds of ordinary combustibles, the amount

Better Hose Care-with CIRCUL-AIR
HOSE CONDITIONING EQUIPMENT
WASHERS • DRYERS • TURN-TABLES • STORAGE RACKS

ROTO-JET HOSE WASHER
AUTOMATICALLY
WASHES—RINSES—DRAINS HOSE

ROTO-JET Washes, Rinses, Drains hose thoroughly and quickly. Hose is self-propelled. Simple one-man operation. With or without detergents, ashes, glass and sludge are automatically scrubbed out and flushed away. Lengthens hose life. Foot-Pedal Operation.



FIRE HOSE DRYER

The patented, electrically operated Circul-Air hose dryer circulates pre-warmed fresh air through loosely coiled hose at the rate of 5 to 6 air changes per minute. No other drying method is so fast — so economical — so easy to use. The preferred dryer in over 5,000 leading Fire Departments.

ACCEPTED - APPROVED
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Approved by Underwriters' Laboratories . . . and Canadian Standards Association. Recommended by all leading fire hose manufacturers.

The fast, modern way to handle, store and load hose.

PORTO-RAK
MOBILE
HOSE STORAGE
AND
LOADING UNIT

Saves valuable space. Holds 1,800 ft. of 2½" hose—proportionately more of 1½"—in an 8 ft. space (when loading table is detached). Roll it right up to the truck for reloading—out of the way when not in use. Equipped with locking fiber-wheeled casters.

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If you are planning to build or remodel, send for our brochure "Fire Station Design."

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575 EAST MILWAUKEE
DETROIT 2, MICHIGAN

of heat produced would be about the same as that produced by burning 15 gallons of gasoline. This would be about 800,000 British thermal units. The furnace in the average home will produce about 100,000 British thermal units per hour and would need to run at full capacity for 8 hours to produce 800,000 British thermal units. Imagine this amount of heat released up one stair well in 5 to 15 minutes.

Gone with the Draft

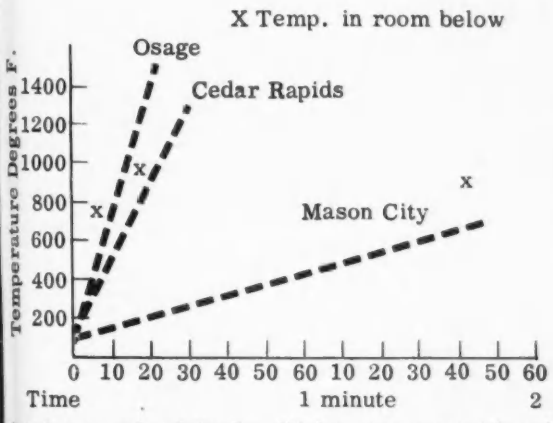
When conditions are right, the buildup of heat with even the small amount of fuel mentioned above is so rapid that the persons trapped are literally "gone with the draft."

In the past few years many fire tests have been held in the State of Iowa. At most of these tests, experiments were conducted to demonstrate both the control of fire by air limitation and the rapid buildup of heat when stair doors are opened.

Time after time, fires with ample fuel have been controlled by the simple process of closing all doors and windows.

To show the rapid buildup of heat when stair doors are opened, special experiments were made. In these tests, fires were usually started in a room near the stairs with the stair door closed. A wire was attached to the stair door so that it could be pulled open when desired. Thermocouples were placed in the fire room and at the head of the stairs behind the closed door to measure temperatures.

When conditions were right and the stair door was opened, the sweep of fire up the stairs and the temperature rises were spectacular. The two graphs show results of some of these experiments.



Stair door opened at 0 time line. Windows were open upstairs and down to allow full air flow.

The first graph shows what happened when conditions were right for rapid temperature rises. It was soon discovered that there must be openings to allow air flow into the fire room or very little heat would build up when the stair doors are opened. The second graph (see page 30) shows the results in one test when air could not flow into the fire room and the flow of heat up the stairway was subdued.

It should be noted that under the circumstances represented in the first graph, occupants would not

(*Continued on page 30*)

Call **ONE** *not* **ALL**
automatically...
SELECT *the proper*
GROUP *for* **ALERTING!**
with the new
monitoradio
Selective Group Alerting Equipment

Long needed dependability at a realistic cost... Monitoradio Division of I.D.E.A., Inc., has developed a device for selective group alerting. This is particularly desirable where one transmitter is being used for more than one purpose; as for instance, one transmitter may be used for the Police Department, the Fire Department, and miscellaneous communications.

Two models are available; the TC-1, which is priced at $43.50, is powered and designed for use with Monitoradio Models MRC-10, MRC-33, and DR-200; the TC-2 is designed for use with Monitoradio MCA-100, from which it derives its power, and is priced at $37.50. These units can also be used with similar receivers of other makes.

This equipment, consisting of a tone switch to be attached to the receiver and a tone generator on the base station transmitter will allow selective calling of one or a group of receivers so equipped. The tone switches hold the receivers mute until the proper audio frequency tone is transmitted, at which time the tone switch responds and closes the receiver speaker circuit, allowing the message to be heard. Expressly featured in these tone switches are unique bridging and time delay circuitry which very effectively prevent false triggering from "stray" audio tones; thereby overcoming one of the most heretofore troublesome difficulties with such equipment.

The tone switches require no wiring or cutting into the set circuitry to install. They are small—only 3½" x 4¾" x 3½"—and attractively packaged.

The tone generators are made in models providing 1, 2, or 3 separate audio tones to allow for the alerting of up to three different groups from one transmitter.

Burton Browne Advertising

TG-3 monitoradio
Division of I.D.E.A., Inc.
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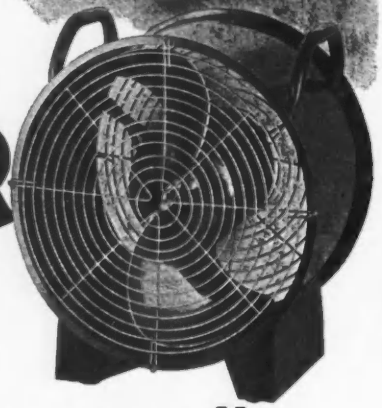
Get smoke out, get air in

with Multi-Purpose

SUPER VAC



CONTROLLED VENTILATION UNITS

NOT JUST A FAN... but a powerful vacuum-action air screw... Super Vac is amazingly simple in operation, made possible by the efficient design of the **powerful propeller** that is the heart of the unit. This patented propeller produces 100% pulling or blowing power over its entire surface.

Proved method of saving lives while also reducing smoke damage

Fire departments **nation-wide** attest to the speed with which Super Vac provides **controlled ventilation**... so necessary in modern fire fighting. This multi-purpose unit primarily (1) gets rid of smoke and fumes through its powerful vacuum action... or, (2) furnishes a tremendous blast of fresh air into the smoke-congested area, reducing the dangers of combustion and asphyxiation. Although one unit is often sufficient, **complete controlled ventilation** can be more speedily accomplished by using two or more units... one or more units **pulling out the smoke and fumes** while the remaining units **blow in a steady supply of fresh air.**

★ **Highly portable... operates in any position**
★ **Design permits vertical stacking**
★ **Made in 16" and 24" sizes**
★ **AC or DC, regular or explosion-proof motors**
★ **Choice of red or white baked enamel finish**
★ **Running board mounts available**

For complete details and specifications on

... contact your fire equipment dealer

... or write manufacturer

SUPER VACUUM

SUPER VACUUM MANUFACTURING CO., Inc
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Equipment for Sale?

Use classified advertising in FIREMEN magazine for fast action — quick sales.

"Rescue Breathing"

A 16 MM. sound film in full color or black and white titled "Rescue Breathing" has been made by American Film Producers, 1600 Broadway, New York 19, New York. The film has a running time of 21½ minutes and shows the techniques of mouth-to-mouth and mouth-to-nose resuscitation adopted last year by the American Red Cross. It is designed as a training aid to teach the techniques of rescue breathing to first-aid groups and other interested organizations. It was based on experiments conducted by Dr. James O. Elam, Director, Department of Anesthesiology, Roswell Park Memorial Institute, Buffalo, New York, who was assisted by other medical personnel from that city.

Prints of the film may be purchased for the following prices: Full color, sound, one to five prints, $200 each; six or more prints, $150 each; black and white, sound, one to five prints, $110 each; six or more prints, $82.50 each. Postage is prepaid if payment accompanies order. Write to American Film Producers at the above address.

SPARKY

T-SHIRTS and SWEAT SHIRTS

Children's sizes only — 2 thru 12

Popular SPARKY emblem in bright Day-Glo red, yellow and black featured on high quality white cotton T-shirts and sweat shirts.

T-SHIRT	SWEAT SHIRT
$1.25	$1.98
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A postcard brings you a free catalog of other fire novelties and SPARKY products. Order today from —

ROBERTS CO. BOX 86D WAYLAND, MASS.

FIRE CHIEF WANTED

Applicant must have at least five years' experience as a fireman, including at least three years' supervisory experience in a municipal fire department. Age: 25–42 years. High school graduate. Salary range: $6,805–$7,836. Applications may be obtained from the City Manager, City Hall, Plymouth, Michigan. Applications must be completed and returned to the City Manager no later than April 30, 1959. Indicate on application all courses completed in fire fighting training or related courses of study. Applicants will be required to take a competitive written examination and an oral examination.

CITY MANAGER
City Hall, Plymouth, Michigan

New Training Officers

RALPH E. ELLENWOOD, chief instructor of the Fort Wayne fire department, and member of the NFPA Committee on Firemen's Training, was re-elected as president of the Indiana Certified Fire Instructors Association, during the second annual fire instructors training course at Purdue University.

Other officers elected include Charles L. Roblee, Public Safety Institute, Purdue, secretary; Robert F. Hamm, Indiana Rating Bureau, Indianapolis, chaplain, and the following directors: W. H. Crossman, Jr., Napoleon volunteer fire department; George W. Tigner, Wayne township fire department, Indianapolis; Walter G. Pandak, East Chicago fire department; Fred Koltz, Richmond fire department; and Ralph M. Daily, Eli Lilly and Company, Lafayette.

RCAF Fire Fighters' Competition

(*Continued from page 19*)

by 3 inches high. The names of the members of the winning team, the year and their unit name goes on one of the small plaques. The trophy is presented during Fire Prevention Week and is held by the winners until the following September.

The winning team during the 1958 season was Royal Canadian Air Force Station Lincoln Park at Calgary, Alberta, and their total evolution time of 3 minutes 8.9 seconds was the best for the year. This included 9 seconds of penalties.

Onan NEWS REPORT

Onan Standby Electric Plants guarantee power in emergencies

This Onan 10KW emergency electric plant is installed in the community building of *Indian Hills, Ohio.* It not only provides the police department with all the light and power required, but supplies needs of the fire department, too!

When power interruption occurs, the Onan plant starts automatically and supplies current for all essential purposes . . . lights, radio communication, signals, heating system, and other motor-driven equipment.

Dependable Onan emergency electric plants provide electric power for operation of all vital municipal services. In time of disaster, when power interruptions are most likely to occur, emergency power saves lives, protects property, helps to restore and maintain order. Available in sizes from 500 to 200,000 watts; Diesel or gasoline-powered models.

Teletype machines in the Norwalk, Connecticut police department are supplied with power in emergencies by an automatic Onan Standby Plant. Norwalk's 3,500-watt Onan unit also furnishes power for the oil burner, radio, ventilating fans and 60 fluorescent lights.

See your local distributor or write for folder on standby models

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ELECTRIC PLANTS • AIR-COOLED ENGINES • KAB KOOLER • GENERATORS

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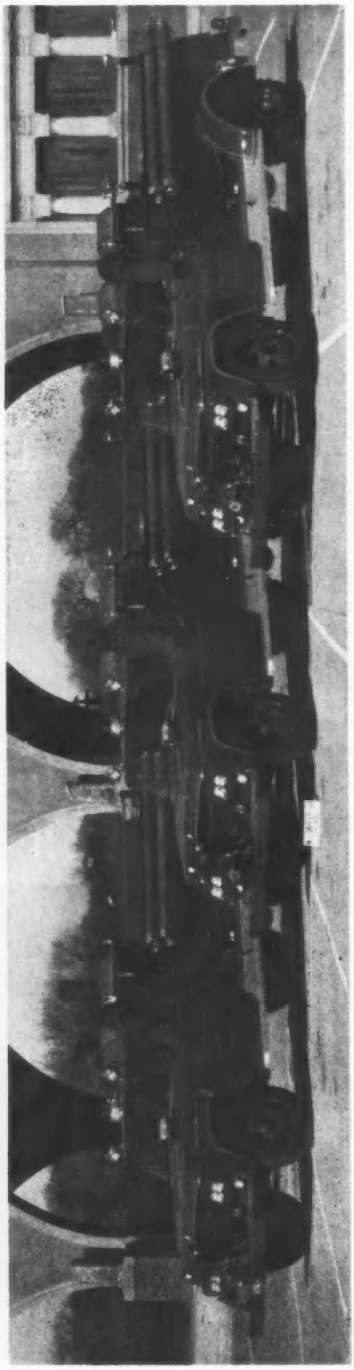
Three More Champions! A Reorder!
FOR PIERCE COUNTY FIRE PROTECTION DISTRICT, STATE OF WASH.

You'll want to know all about our low cost finance plan or combination PURCHASE-RENTAL plan.
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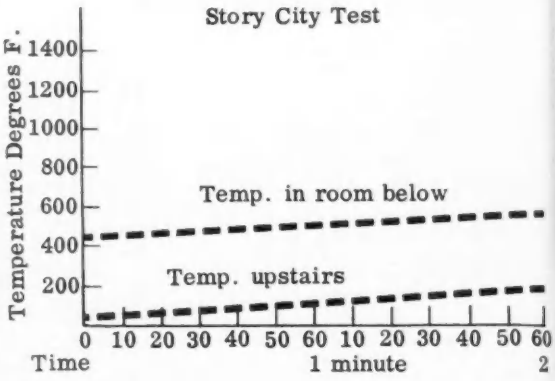
Why Mass Fire Deaths?

(*Continued from page 27*)



Stair door opened at 0 time line. No openings upstairs or down to allow air flow.

have had time to escape, especially in the Osage and Cedar Rapids tests.

The building arrangement at the Mason City test was somewhat different. In this case there was no door on the stairway. The heat was allowed to build up in the upstairs hall from a fire downstairs. The graph represents what happened when a door in the upstairs hall was opened and the heat allowed to push into one of the rooms. Even in this case anyone in the room would have had very little time to escape from the window.

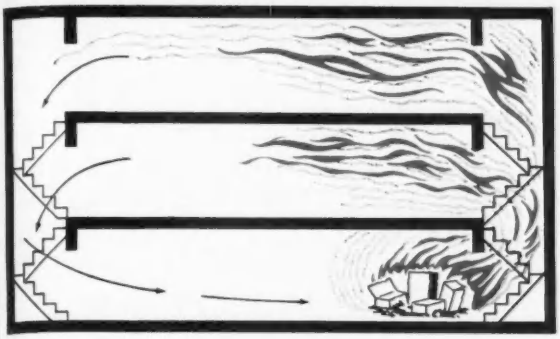
The principles verified by the time-temperature curves and observations are simply those utilized in maintaining a fire in a furnace or stove. When an opening is provided, heated air rises, drawing in fresh air at the bottom. Closing the openings either above or below will stop the draft and control the fire, because the intensity of the fire will be in direct proportion to the amount of air it receives.

Limited Air Flow

It follows that when buildings are arranged to limit air flow to potential fires, occupants will have time to escape. The illustration at the bottom of page 31 shows how closed stair wells or partitioned hallways can and will limit the air flow to a potential fire. These partitions do not necessarily need to be of heavy fireproof construction. Their purpose is not to prevent the eventual burning through of the fire, but rather to control air flow and prevent rapid buildup of the fire, so that occupants will have a chance to escape. It is better to have several light partitions rather than one heavy fireproof one.

To illustrate this point, suppose that some uninformed person in the interest of expediency had blocked open doors A, B and C in the sketch at lower right. The remaining partitions would still limit the air flow and give some time for escape. Another purpose of multiple partitions is to enable them to act as air locks while persons are escaping from the building. Doors must be temporarily opened for escape, and multiple partitions will prevent drafts during this escape period.

Another safety factor of multiple partitions is their continued functioning in case a fire or explosion breaks



Shown above is an ideal "furnace-type building" arrangement. There is a place for heat and smoke to travel upward and down the halls, actually helping to force fresh air down the second stairs to the fire, so that it can burn with increased vigor, to produce more heat to force in more air.

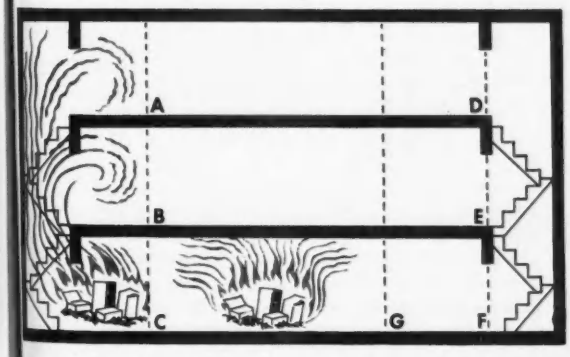
one or more of them. All of these breaks should be equipped with self-closing doors, which should never be allowed to be blocked open. These doors should not be of the type that can be left open and are designed to be closed by the melting of a fusible link in case of fire. Fusible links will not close the doors where air is flowing into the fire.

Fire Escapes

Public buildings should always be equipped with adequate fire escapes. There should always be at least two avenues of escape from any area of the building. With proper design and adequate fire escapes our public buildings need not be firetraps. These mass deaths are not accidents — they are caused by persons who either didn't know or didn't care, or decided to gamble with other people's lives.

Inspections

One of the most frequent abuses of fire safety is the blocking open of self-closing doors. This is usually done by using a small wooden wedge. In many cases deaths in buildings have been the direct result of one of these little wooden wedges. Whenever they are encountered by firemen they should be picked up at once. When you find someone complaining about having to be continuously making new wooden wedges, you have found a person in need of fire safety education.



This illustration shows how closed stair wells or partitioned hallways can and will limit the air flow to a potential fire. The purpose of these partitions is to control air flow and prevent rapid buildup of the fire.

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Superior Workmanship

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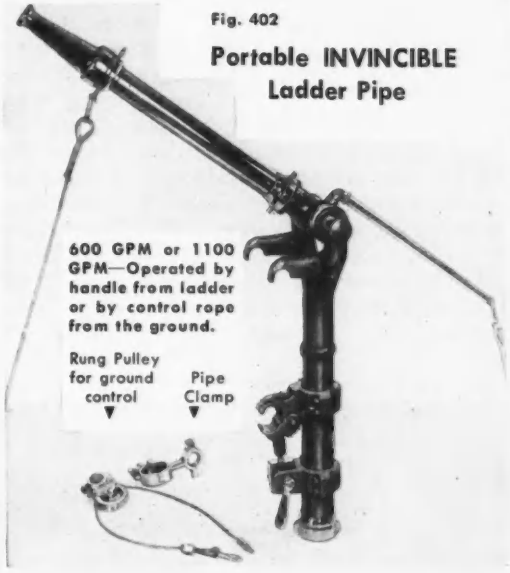
Fig. 402
Portable INVINCIBLE Ladder Pipe


600 GPM or 1100 GPM—Operated by handle from ladder or by control rope from the ground.
Rung Pulley for ground control
Pipe Clamp

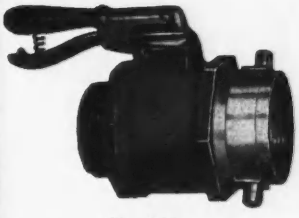


Fig. 163
Double Seat Hydrant Gate, either right hand or left hand. 2½" N.S.T. male x female.

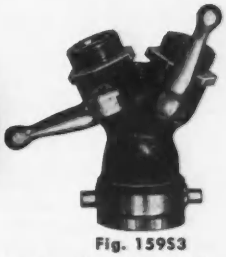


Fig. 1595S
Leader Line Gated Siamese, 2½" x 2-1½" outlets, full water way.

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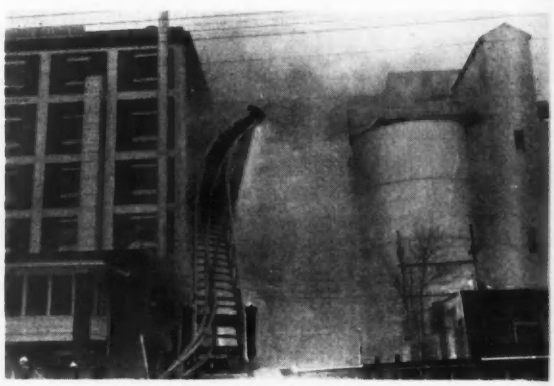
HUTCHINSON, KANSAS HANDLES

TOUGH FIRE IN A GALE!

THE fire department of Hutchinson, Kansas, under Chief Fred R. Dimond, experienced one of its toughest battles last winter when a battery of large tempering bins directly adjoining the large six-story Larabee Mill caught fire during a terrific storm with gale force winds. First alarm received at 3:51 P.M. brought two 750 gpm American LaFrance pumpers and a 100-ft. American LaFrance aerial manned by fifteen men. Chief Dimond promptly sounded a second alarm which brought an additional 750 gpm pumper manned by three on-duty firemen and a 900 gpm reserve pumper with mounted deck gun. All off-duty men were called, bringing 30 more men. Initial attack was with heavy streams at front and rear consisting of three lines to a deluge gun with a 500 gpm combination fog and straight stream nozzle at the rear of the fire, and three lines to the ladder pipe on the aerial ladder which was stationed at the entrance to the grounds approximately 150 feet from the fire. The ladder was extended so that the stream was in a position to cut off extension of the fire to the mill. The second alarm pumper initially supplied two lines to the monitor on the reserve pumper, also positioned at the front of the fire.

The gale was so severe that tree limbs up to 13 in.



Hutchinson's aerial ladder looked like this just before lines to the ladder pipe were shut down. Attack was then made more successfully with hand lines and a monitor nozzle.

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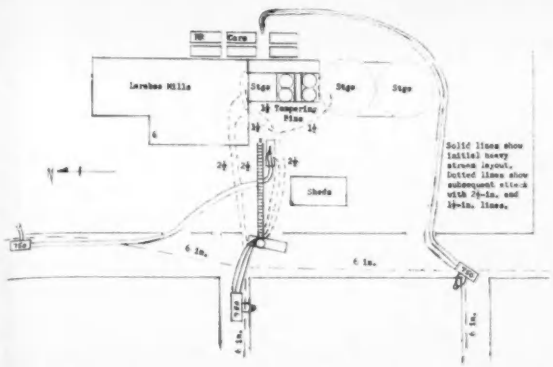

Sketch of fireground, showing placement of aerial ladder and eventual use of monitor nozzle and hand lines in attack from roof of main mill. With the high winds, combination nozzle was not as effective as a 1½-in. straight stream tip.

(Right) Just before the ladder pipe was shut down. Note fire involvement in upper center of picture, and stream from hand line in lower center.

in diameter were ripped off in the vicinity of the fire building. The wind resulted in the whipping and bending of the extended aerial ladder, making it necessary to put the ladder pipe out of service. Accordingly, lines supplying the ladder pipe were shifted. Two were connected to the monitor on the reserve pumper and another was wyed to supply two 1½-in. lines used to surround the fire and protect exposures. The monitor nozzle was originally equipped with a 1,000 gpm fog-straight stream nozzle, but this was changed to a 1½-in. straight tip due to inability to obtain effective reach and volume in straight stream position. Two of the lines to the monitor were then operated as hand lines with 1⅛-in. and 1¼-in. tips on the top floor and roof of the main mill. All pumpers were operating from hydrants on 6-in. mains utilizing all of the pressure and volume available. The department was successful in keeping the fire out of the main mill and large storage tanks. No dust explosions occurred, although the hazard was considerable due to interruption of equipment due to power failure occasioned by the storm.

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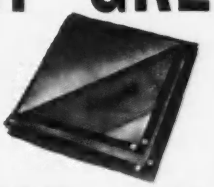

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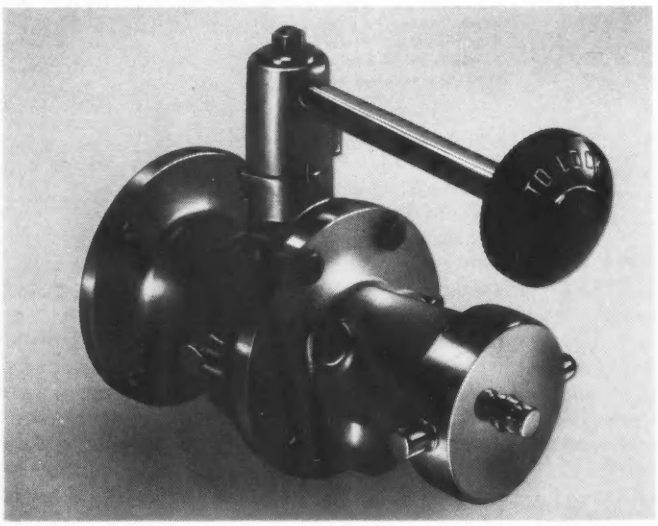

Just 10 years ago, in January 1949, the HALE ball-type "BL" Discharge Valve was first announced to the Fire Field.

It made an instant "hit."

Fire Fighters everywhere welcomed the new Valve because of these outstanding features:

- **Opens and closes easily at all pressures.**
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- **Not sensitive to dirty water.**
- **Easy and inexpensive to service . . . no "grinding in."**
- **Slight twist of handle locks valve into any desired position for gating.**

Year by year the "BL" has maintained its popularity and has been constantly improved through continuous research and development.

Available for HALE Fire Pumps Regardless of Age

The "BL" Discharge (and Suction) Valves can be used on practically all HALE Fire Pumps *no matter how old the model.* They are now also available with undrilled flanges for use on many makes of pumps other than HALE. This offers Chiefs everywhere an opportunity to modernize older pumps at reasonable cost.

Send for NEW Bulletin No. 293

By sending today for new "BL" Bulletin No. 293, you will receive full details showing the many useful arrangements available when you buy Hale "BL" Valves — and why they are *preferred by most FIRE CHIEFS.*

NOTE: HALE also makes the type "B" Discharge and Suction Valves (described in new Bulletin No. 369) to meet Specifications which still insist on a straight-thru, full-opening Valve.

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Fire Pumps in all Standard Capacities

"Sparks Astray"

AN ILLUSTRATED, colorful folder with the above title has just been published by NFPA. It is pinpointed to the "man with the torch" doing cutting and welding with gas or arc equipment. In simple, but effective terms it mentions four dangerous sources of ignition in these operations — flying sparks, falling slag, the arc or flame, and hot metal.

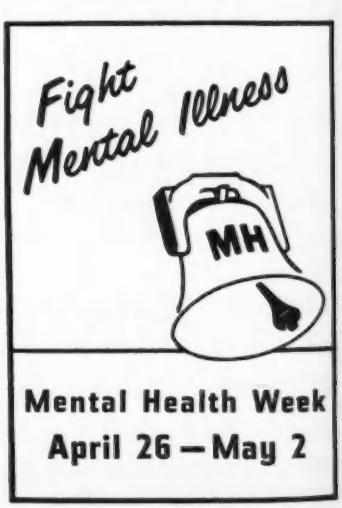
Priced at $3.00 per hundred; $23.50 per thousand, the folder should be of special use to many industries, and, of course, to fire departments who find unsafe cutting and welding operations going on in garages, repair shops and other occupancies. Order your copies of the folder from the NFPA Publications Department.

Dry Cleaning — Safely!

YOU Are on the Spot" is another new folder produced by NFPA to tell the public the dangers of dry cleaning in the home. Colorfully illustrated, it gives the rules for safe handling of dry cleaning fluids.

Use of this low cost folder by fire departments may help to reduce the frequent injuries and home fires caused by improper use of dry-cleaning fluids. The folder is particularly timely for public distribution during Spring Clean-Up, in connection with home inspection programs.

Copies are available from the NFPA Publications Department at $2.00 per hundred; $12.50 per thousand.



What to Do about . . .
ALKALI METALS

THESE suggestions on handling various incidents involving alkali metals are excerpted from the NFPA book *Fire Protection for Chemicals.* The 152-page book was written by Deputy Chief Charles W. Bahme of Los Angeles and is available from NFPA at $3.00 per copy.

Fire Fighting — Alkali Metals

Care should be taken to avoid wetting containers which are not sealed air-tight, for the action of water on exposed sodium, for example, would only make the situation worse. According to one of the manufacturers of sodium (who asserts that it is shipped in quantities ranging as high as 80,000 pounds) the preferred material for extinguishing sodium fires is fine, dry soda ash. Throwing liberal quantities of this material over the surface of the burning sodium will quickly extinguish the fire by absorbing the moisture present, and cold sodium, particularly when an oxide covering has formed over the surface, will not burn spontaneously in air unless it is finely divided.

Special chemical compounds, such as G-1 powder, can be used. Dry sand is also satisfactory, but care must be taken, for sand may still be wet when it appears dry.

Water, foam, soda-acid, carbon dioxide or carbon tetrachloride should never be used on fires involving sodium, potassium or the other alkali metals mentioned above. Carbon dioxide in any form, as well as carbon tetrachloride, reacts violently with hot sodium.

Where the metal is submerged in hydrocarbon liquid, such as kerosene, a fire in the liquid can be extinguished by carbon dioxide, and there will be no reignition because the blanket of solvent vapor prevents the sodium from catching fire.

Since the material melts at low temperature (*e.g.*, sodium melts at 207°F.), care must be exercised even in applying dry powders so as not to cause any splattering of the molten liquid.

When overhauling, be careful not to get alkali metals on the bare hands, in order to avoid serious burns.

Remember, that if the sodium, potassium, etc., have been kept in airtight containers in a proper fire-resistive building or cabinet, there is not so much likelihood of their offering any problem in fire fighting; water could be used as usual to extinguish any fire in other portions of the building.

"The Springfield Fireman"

CHIEF Ray E. Fraker's fire department in Springfield, Missouri, recently produced a full color motion picture film with the above title. Produced with the help of the Springfield Chamber of Commerce and City Utilities, the film shows the life of a Springfield fireman from the time he joins the department until he reaches the rank of captain. Chief Fraker reports that it has been shown to more than 2,700 persons since this past January and that numerous civic groups and other organizations requested the film.

The film is available for outright purchase from the Calvin Company, Kansas City, Missouri, for approximately $140. Running time is about 35 minutes.

UL of Canada Expands

GROUND has been broken for construction of an addition to the offices and testing station of Underwriters' Laboratories of Canada, located on Crouse Road in Scarborough, Ontario. The extension will provide an additional 5,800 square feet which will permit the establishment of a permanent fire protection school to help Canadian authorities keep abreast of technical developments in this important field. The enlarged area will also allow ULC to expand its scope of operations in its chosen field of "testing for safety." Included in the equipment in the instruction and testing area will be a full scale hydraulic laboratory with water storage capacity of 25,000 gallons.

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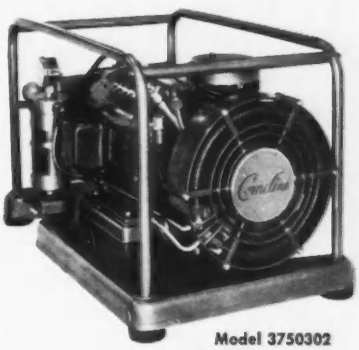

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This new Cornelius Compressor is designed and built to exceed the high standards demanded by America's fire fighting people. See your fire equipment distributor for a demonstration or write for free literature.

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IMPORTANT FIRE SCHOOL DATES

Alabama: The 23rd Annual Alabama Fire College will be held on the Northington Campus, University of Alabama, May 25–29. For details write to W. L. Rickard, Assistant State Supervisor, Trade and Industrial Education, P.O. Box 2847, University.

Arizona: Tentative dates for the Annual Arizona Fire School in Phoenix are October 15–17. Write to Chief Jake Siken, Training Director, Fire Department Headquarters, Phoenix, for information.

Arkansas: Arkansas State Fire Department Instructors' Training School will be held in Little Rock, June 8–10. Regional fire schools are scheduled as follows: Hot Springs, April 13–23; Fayetteville, April 27–May 7; Camden, May 11–21; Russellville, May 25–June 4; Crossett, June 15–25. Write to Whit Murphy, Registrar, Arkansas State Fire College, State Education Building, Little Rock.

British Columbia: The Fire Chiefs' Annual Fire College will be held in Burnaby, August 19–21. For more details, write to H. K. Jenns, Supervisor, Traveling Instructional Units, Office of the Fire Marshal, 411 Dunsmuir Street, Vancouver 3.

California: The Fire Training Officers Workshop (for fire training officers only) will be held in Fresno, May 18–22. The Sixth Annual Fire and Arson Investigation Seminar is scheduled for June 15–19 at the University of California in Los Angeles. Write to Thomas S. Ward, Supervisor of Fire Training, State Department of Education, 721 Capitol Avenue, Sacramento.

Colorado: The Colorado State Fire School and Tournament will be held June 17–20 at Sterling. For further information, write to Chief Arthur Becker, Secretary, Colorado State Firemen's Association, 2224 South Stuart Street, Denver 19. Reservations may be made through Deam Dowis, Chairman, City Hall, Sterling.

Florida: The Marathon Volunteer Fire Department will be host to the Florida State Firemen's Association at its 32nd Annual Convention, May 7–9. For information, write to R. O. BuShea, Chairman, Gulfstream Insurance Agency, Inc., P.O. Box 200, Marathon Shores. The Florida State Fire College in Ocala will feature a special class in liquefied petroleum gas, May 19–21. Write to W. H. Barnett, Superintendent, Florida State Fire College, Box 785, Ocala.

Georgia: The Georgia Fire Institute for 1959 includes the following regional fire schools: Athens, April 2–3; Waycross, April 13–14; Atlanta, May 11–12; Savannah, June 8–9. Write to the fire chiefs at fire department headquarters in those cities for further information.

Idaho: The Annual State Fire School will be held August 13–15 in Boise. Write to Earl Robinson, Secretary-Treasurer, 212 South 16th Street, Boise, for further information.

Illinois: The 35th Annual Illinois Fire College, June 8–11, and a Fire Inspectors' Short Course, May 18–21, will be held in Urbana. A Pump Operators' Short Course is scheduled in Allerton Park, Monticello, April 13–16. Write to R. K. Newton, Director, Illinois Fire College, 112 D Illini Hall, Champaign.

Indiana: The 15th Annual Arson Investigation Seminar will be held at Purdue University, April 27–30. Write to Professor Shelby Gallien, Director, Public Safety Institute, Purdue University, Lafayette.

Iowa: Iowa State College in Ames will be the location for the Fire Department Inspection Conference, April 7–10; Instructors' Conference, April 21–23; and the Annual Fire School, June 16–19. Write to Keith Royer, Supervisor, Firemanship Training, 110 Marston Hall, Iowa State College, Ames.

Kansas: An area training school will be held in Emporia, April 23–25. For further information, write to Clyde A. Babb, Director, Kansas Fire School, University of Kansas, Lawrence.

Kentucky: June 1–3 is the date of the Annual Kentucky Fire School to be held at the University of Kentucky in Lexington. Write to John L. Thompson, Chairman, Fire School Committee, 940 Starks Building, Louisville 2.

Louisiana: State Fire School will be held April 13–16 at the Central Fire Station, Baton Rouge. Write to Chief Robert A. Bogan, Superintendent, P.O. Box 96, Baton Rouge.

Maryland: The Fire Service Extension Department of the University of Maryland features a Short Course for Fire Inspectors, April 6–9; and the Pump School series May 1–2, 8–9, 15–16, 22–23, June 5–6, all to be held at the University. Write to Robert C. Byrus, Director, Fire Service Extension Department, University of Maryland, P.O. Box 85, College Park.

Michigan: The 1959 training program includes the Fire Chiefs' Conference, April 7–8; Instructors' Conference, May 12–14; Annual Fire College, June 16–19. Write to Francis Hartman, Supervisor, Fireman-

30—#28 Sirens
11—Junior Beacon Rays
27—Fireballs

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ship, University of Michigan Extension Service, 1610 Washtenaw, Ann Arbor.

Minnesota: The Eighth Annual Minnesota State Fire School will be held April 27–May 1. Write for detailed information to E. L. Weber, Assistant Commissioner, Fire Marshal Division, 570 State Office Building, St. Paul 1.

Missouri: The Ozark-Maries Fire Conference will be held June 21. The Annual Central Missouri Fire Conference is scheduled for July 24–26 at the University of Missouri. For more information, write to William Bush Walden, Administrative Assistant in Charge of Firemanship Training, University of Missouri, Building T-11, Room 101, Columbia.

Montana: The Third Annual Montana State Fire Chiefs' Conference is scheduled for June 11–13 at Miles City. For further details, write to William S. Hayes, Secretary-Treasurer, Montana State Fire Chiefs' Association, 208 Eklund Building, Great Falls.

Nebraska: The Annual State Fire School will be conducted at the Training Center, Grand Island, May 3–5. Group classes will feature fire department administration and fire prevention, mechanics of fire department operation, pump operation and practices, rescue and actual demonstrations. Write to William A. Berens, Chief State Fire Instructor, Fire Department Headquarters, Grand Island.

New Mexico: Carlsbad will be host to the New Mexico State Firemen's Association Convention, September 21–23. Write for detailed information to Chief Ira J. Stockwell, Fire Station No. 1, Carlsbad.

New York: The Rochester Fire and Police Academy in Rochester will be the location of the 11th Annual Fire Instructors' Conference, May 25–29. For details, write to Charles M. Fales, Chief, Bureau of Fire, Division of Safety, 17 Elk Street, Albany.

Ohio: Fire training classes will be held in Painesville, June 6–7 and in West Lake, June 13–14. Write to Charles J. Getz, Training Coordinator, 216 East Butler Street, Loudonville, for more information.

Oklahoma: State Fire School will be held in Stillwater, April 20–24. A Fire Hazard Control Short Course is slated for June 15–26, also in Stillwater. Write to R. J. Douglas, Head, Fire Protection Department, Oklahoma State University, Campus Fire Station, Stillwater.

Ontario: The following courses will be given at the 1959 Fire College in Gravenhurst: Basic Fire Inspection Practices, May 25–29; Atomic Fire Hazards in Industry, June 1–5; Advanced Fire Inspection Practices, June 15–July 3. Write to D. E. Barrett, Director, Ontario Fire College, P.O. Box 830, Gravenhurst.

Oregon: Regional Fire Schools will be held in Roseburg, April 13 and May 10. The Marion County Officers' Conferences are scheduled for April 14, 28, May 12, 26 and June 9, in Salem. Write to Elmer H. Halstead, State Supervisor, Public Service Training, 105 State Library Building, Salem.

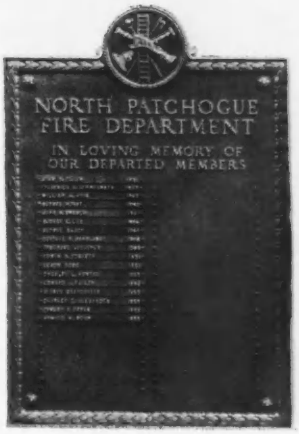
Pennsylvania: The 21st State Fire School in Lewistown will be held August 3–7. Special training classes will be given in fire department officership, May 25; basic fire fighting, April 13 and June 8; advanced fire fighting, May 11; rescue, ladder and salvage. A fire department pump school is scheduled for April 27 and June 22. Write to Art Espey, Director, Pennsylvania State Firemen's Training School, Box 631, Lewistown.

South Carolina: A number of regional fire training schools are given all during the year throughout the state. Write to H. B. Wells, Instructor, Fire Fighter Training, 1539 Harrington Street, Newberry.

South Dakota: The 30th Annual Fire School and 75th Annual Convention of the South Dakota State Firemen's Association will be held in Madison, June 7–12. For details, write to Francis W. Pyncheon, Secretary, P.O. Box 590, Pierre. Reservations may be made through Chief Joe Graves, Fire Department Headquarters, Madison.

Tennessee: The 16th Annual Tennessee State Fire Service School will be held at the Tennessee Fire Training Center

(Continued on page 38)



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The "NEW YORKER"
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"REGULATION"
STANDARD

Other Leather Helmets in other weights, in regulation and drop brim style.

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Because
They Last the Longest

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SINCE 1836

Important Fire School Dates

(*Continued from page 37*)

in Murfreesboro, August 17–21. Short courses on inspection practices are scheduled for April 15–17 and on fire hazards, liquid metals and new chemicals, May 20–22. Write to Homer S. Elkins, Itinerant Instructor-Coordinator, Tennessee State Fire School, 215 Chestnut Street, Chattanooga 3.

Texas: The 30th Annual Texas Firemen's Training School will be held July 19–24 at Texas A & M College. Write to Henry D. Smith, Chief, Firemen's Training School, Engineering Extension Service, College Station.

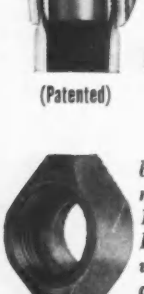
Virginia: The Fourth Annual Virginia Fire College will be held at the College of William and Mary in Williamsburg, June 22–26. Write to Chief Elliott W. Jayne, Director, Virginia Fire College, Williamsburg.

Washington: Bellingham will be the site of the Annual Fire Conference, July 22–25. A special class for command officers in Yakima will be held May 26–29. Write to Mrs. Emma Ethier, Secretary, Washington State Firemen's Association, 3206 East 125th Street, Seattle 55.

West Virginia: The 29th Annual West Virginia Fire School in Morgantown will be held July 20–24. Write to R. E. Hanna, Jr., Director, West Virginia Fire School, West Virginia University, Morgantown.

Wisconsin: Many regional fire schools will be held throughout the state. For details, write to William E. Clark, Supervisor, Fire Service Training, State Board of Vocational and Adult Education, 14 North Carroll Street, Madison 3.

A new high-pressure coupling by BAR-WAY for all types of fabric hose



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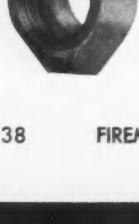
1. FULL FLOW—no significant reduction of internal diameter. Pressure is assured.
2. STREAMLINED—round-edged design, no projection.
3. INTERNAL EXPANSION—prevents shrinkage of the hose at the coupling.
4. ACCURATELY MACHINED—always the same . . . interchangeable.
5. REMOUNTABLE—can be removed and re-attached with a key any number of times without cost.
6. WEIGHT—no heavier than comparable expansion type coupling.

Successfully Tested To Bursting Point Of Double Jacket, Single Jacket And Sweat Hose

Recognizing the trend toward higher and higher pressures in fire fighting, Bar-Way has developed a revolutionary coupling that will withstand the pressure and the pull. This new coupling is designed to fire fighting specifications. It guarantees full flow, full pressure, it is streamlined to slip over obstructions, and it can be interchanged anywhere at any time without damage to either the tube or fabric. Specify Bar-Way! Write Bar-Way Mfg. Co., Stamford, Conn.



Available in polished bronze in both standard rocker and forestry lug. 1½" in production. Larger sizes will be available.

BAR-WAY MFG. CO., STAMFORD, CONN.

A Tribute to Chief Strickfaden

RECENTLY, the officers and men of the Columbus, Ohio, Fire Department, city officials and other citizens paid tribute to Fire Chief Walter G. Strickfaden who celebrated his 75th birthday on March 30. The chief joined the department June 18, 1906, and in 1948 became the twelfth chief since the department became fully paid in 1860.

An active member of the Ohio and International Associations of Fire Chiefs, Chief Strickfaden has also taken part in a number of state firemen's training activities, civil defense, and other functions of the fire service. In addition, he has taken part in a number of civic and charitable functions, his most recent being the spearheading of a Muscular Dystrophy campaign in Franklin County which realized some $60,000 in contrast to $13,000 of the previous year.

A Fourth Degree member of the Knights of Columbus, Chief Strickfaden is also a member of the military and civilian law enforcement officers' associations of Central Ohio, a number of charitable organizations and also qualified for the Hole in One Club in July, 1953, at the Scioto Country Club.

FEMA Elects Officers

FIRE Equipment Manufacturers Association announced the election of new officers for the year: A. C. Trautwein, The Fyr-Fyter Company, president; Stewart Boal, Randolph Laboratories, Inc., vice-president; G. J. Halpin, American LaFrance, Division of Sterling Precision Corporation, treasurer. Three new members of the Board of Directors are R. L. Weir, Elkhart Brass Manufacturing Company, Inc.; L. C. McKesson, Ansul Chemical Company; A. D. Symonds, W. D. Allen Manufacturing Company.

Taking a Trip?

IF YOU plan to pass through the states and province mentioned below, why not visit some of these fire departments who just joined NFPA? Just say that you read their names in FIREMEN magazine.

Arkansas: Earle Fire Department, Earle.

British Columbia: Chief W. C. Cory, Delta Fire Department No. 1, Ladner.

Illinois: Chief Ivan A. Goodwin, Manhattan Volunteer Fire Department, Manhattan; Chief William Sumner, Metropolis; Reading Township Volunteer Fire Department, South Streator.

Iowa: Eddyville Volunteer Fire Department, Eddyville.

Louisiana: Fire Protection District No. 4, Mandeville; Morgan City Fire Department, Morgan City.

Maryland: Woodland Beach Volunteer Fire Department, Inc., Edgewater.

New Jersey: Delaview Volunteer Fire Company, Delair.

New Mexico: Chief Richard O. Vick, Fort Sumner Fire Department, Fort Sumner.

New York: Bellerose Terrace Fire Department, Bellerose Terrace; Bethpage Fire Department, Bethpage; Lake Carmel Fire Department, Carmel; Geneva Fire Department, Geneva; Terry's Corners Volunteer Fire Company, Inc., Lockport; Glenville Fire District No. 7, Scotia; North Merrick Fire Department, North Merrick.

Ohio: Springfield Volunteer Fire Department No. 2, Holland; Truro Township Volunteer Fire Department, Reynoldsburg.

Tennessee: Forest Hill Volunteer Fire Department, Inc., Forest Hill; LaFayette Fire Department, LaFayette.

Texas: Annaville Volunteer Fire Department, Corpus Christi.

Vermont: East Dorset Fire District No. 1, East Dorset.

Washington: Port Orchard Volunteer Fire Department, Port Orchard.

Wisconsin: Chief L. J. Andres, Town of Waukesha Fire Department, Waukesha.

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INCREASE YOUR INCOME!

Convert your spare time into steady income selling most popular line of Belts and Buckles with Fireman's personal initials, first name or nickname with miniature replicas of actual fire equipment beautifully enameled, also lapels, tie clasps, key chains, money clips, and cuff links. Excellent repeat business. We furnish you with FREE complete sales kit. Really nice part-time money producing items.

NO INVESTMENT NECESSARY!

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SCOTCHLITE BRAND REFLECTIVE FABRIC
CAN SAVE YOUR LIFE!

Whether you're riding the tailboard, up fire escape or ladder, or caught in smoke — SCOTCHLITE FABRIC adds to your safety, identifies you quickly, increases overall efficiency! It's 100 times brighter than the whitest white paint. More and more modern departments are making it a "must"— and GLOBE SUITS have it for you! Scotchlite lettering also available.

Write now for fully illustrated, colorful, 8-page catalog on the complete GLOBE firemen's suit and accessories line.

ANNOUNCING THE ALL NEW

Plectron **TONE ALERTING RECEIVER**

The fire department that is equipped with a PLECTRON Radio Tone Alerting System will gain those precious minutes that are priceless when responding to an alarm.

The Plectron Sentry

FOR COMPLETE INFORMATION PLEASE WRITE TO:

PLECTRON CORPORATION

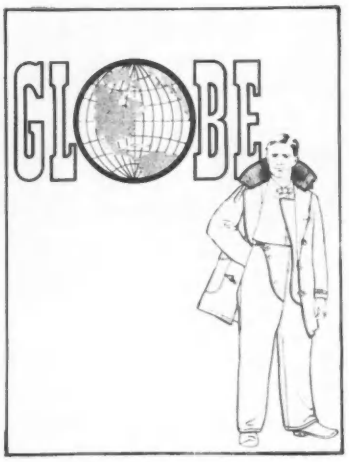
OVERTON, NEBRASKA

Never before has a radio receiver been available for tone alerting that offers so much at a price so low. Available for any radio frequency in the 25-54 and 152-174 megacycle bands. **$87.50** Quantity Discounts

Use your present 2-way base transmitter to send emergency voice radio messages direct to your firemen. Up to 12 miles range without outdoor antenna.

this month's

EQUIPMENT NEWS



Catalog on Firemen's Suits

The originators of "Quick-Hitch" Globe suits offer this helpful, loose-leaf, two-color catalog on firemen's suits. Fabric samples, specifications and details are presented on coats, pants and accessories. For your free copy, write to *Globe Manufacturing Company*, Pittsfield, New Hampshire.

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Instant stopping and starting of sirens and voice amplifiers is now possible with equipment for mobile radio. Write to *General Electric Communication Products Department*, Lynchburg, Virginia. . . . Your apparatus and command cars need reliable alternating flashers for their multiple lights. There's a free folder on flashers for warning lights by *Macchi & Company*, 819 Valencia Street, San Francisco 10, California. . . . "How to Select a Portable Handlight to Fit Your Needs" is a free booklet on rechargeable and dry-cell battery-operated handlights. Write to *Koehler Manufacturing Company*, Marlboro, Massachusetts. . . . "Equipment for First Minute Fire Control" in both offices and plants is the title of a new illustrated and informative brochure. Write to Mr. Harry Butters, *American LaFrance Corporation*, Elmira, New York.

●

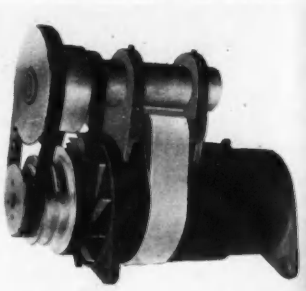
Promotional Quiz Book

Arco Publishing Company, 480 Lexington Avenue, New York 17, New York, has issued a new book "Fire Administration and Technology" designed to provide concise, simple study material with questions and answers from actual fire service examinations. These were taken from examinations of New York, Los Angeles, Baltimore, Washington and other cities covering topics such as administration, executive planning and control, chemical fire fighting, physics, hydraulics, and others. Altogether, the book has 38 chapters covering examination questions for all ranks. The 8½- by 11-in., 228-page, paper-bound book sells for $4.00 and can be obtained from the publisher at the above address.

●

Are you a fall guy for poison ivy or poison oak? Better check on "Imunivy" and "Imunoak" by *E. D. Bullard Company*, 2680 Bridgeway, Sausalito, California. . . . A newly appointed distributor for *FWD* fire apparatus is *Martin Vehicle Sales, Inc.*, 7541 South State Street, Chicago, Illinois. . . . Look into the "emergency-planned" fire fighting support truck bodies designed and manufactured by *Reading Body Works, Inc.*, 420 Gregg Avenue, Reading, Pennsylvania. . . . Low-cost, light duty ambulances are now part of the municipal apparatus line offered by *International Harvester Company*, 180 North Michigan Avenue, Chicago, Illinois.

Generator Overdrive Unit



Consolidated General Products, Houston 8, Texas, announces a unique overdrive unit, called "Gen-O-Drive" to provide essential peak generator performance and constant battery charge in fire department apparatus, officers' cars, and rescue units. Write to the manufacturer at the above address for complete details.

●

The Hall-Scott fire truck engine line is described in a new two-page bulletin by *Hercules Motor Corporation*, 101 11th Street, S.E., Canton 2, Ohio. . . . A complete new line of aluminized flameproofed rayon protective garments, known as Wheeler's "70" line, is announced by *Wheeler Protective Apparel, Inc.*, 224 West Huron Street, Chicago 10, Illinois.

BUYING NEW EQUIPMENT?

Consider the products advertised in this issue.

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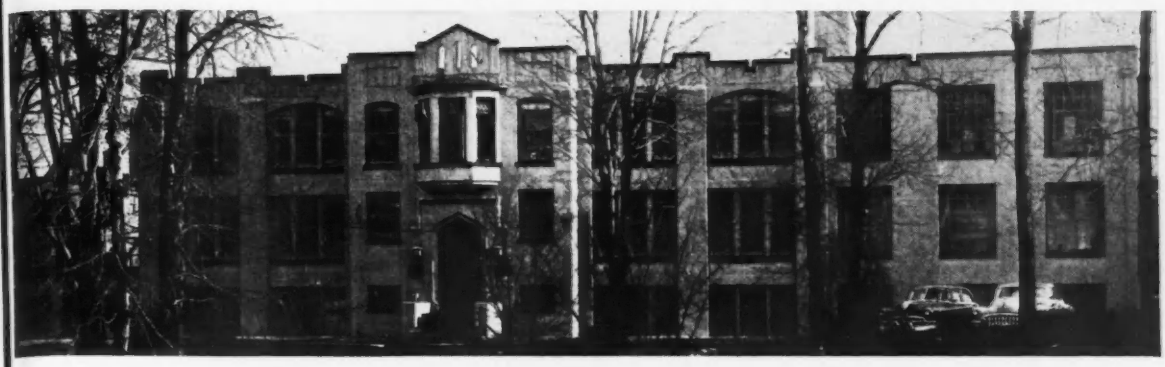
We not only get improved fire and burglary protection, but...

save $10,000 a year!

Vice President



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Whether your premises are old or new, sprinklered or unsprinklered, an ADT specialist will show you how an appropriate combination of ADT Automatic Protection Services can give you better protection than other methods, and *at less expense*. Call our local sales office if we are listed in your phone book; or write to our Executive Office.

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Powhatan's DURA-FOG Nozzle

PLATE NO. 261

CHOICE OF SWIVEL OR SOLID BASE

- Each nozzle sold has a 100% performance test
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- Greater reach
- Finer dispersion which allows less GPM without sacrificing effectiveness
- Denser curtain
- No kickback
- Operates easily under high pressure

TRY IT OUT!

You can — by simply writing us and telling us you want to see and test it. Write today!

OVER A MILLION SHUT-OFFS AND NEVER A LEAK!

Dura-Fog Nozzles have been thoroughly bench tested, to assure dependability. We strived for 250,000 shut-offs, actually tests have gone over a million with no leak!

FLOW IN GPM AT 100 PSI NOZZLE PRESSURE

Size	Straight Stream	30° Fog Pattern	60° Fog Pattern	90° Fog Pattern
1"	20	22	32	35
1½" -60	57	60	72	88
1½" -100	95	100	105	107
2½"	135	165	190	225

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In The Same Location Since 1892

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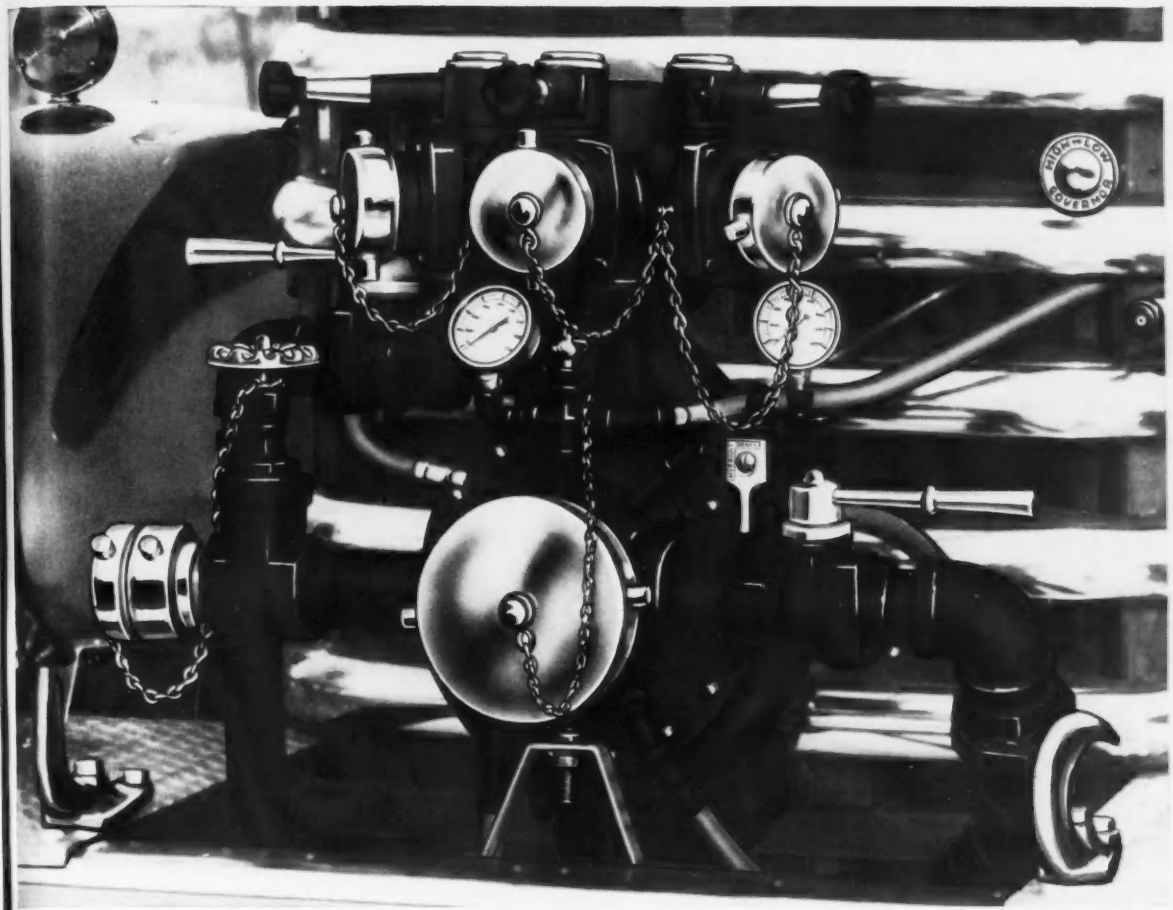


NOW... A 750 GPM FRONT MOUNTED PUMP

BARTON-AMERICAN MODEL UA-75

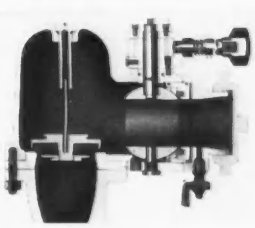
Look at the advantages this biggest Barton-American front mounted pump gives you—extra advantages that help you "kill" fires in a hurry:

The UA-75 is a Class A pump rated at 750 gpm at 150 lbs. Handles *three* 2½" hose lines for volume—and delivers high pressure to 400 lbs. for effective fog streams. You can fight brush fires *while truck is moving* . . . and "nose" down to pond or stream to draft water inaccessible to midship pumpers.

Exclusive, interlocking pump clutch has direct mechanical connection. It *can't* slip! Frost-proof design has been *proven* in thousands of pumps. *Engine vacuum primer* is positive, fast and frost-proof. *Direct controls* make operation fast and easy. Accessibility and simple pump construction cut maintenance time.

The UA-75 includes *factory engineered* p.t.o. shaft, universal joints and pump gear ratios best for *your* truck's engine.

It will pay you to investigate the top-quality, precision-built Barton-American Type UA-75. It *costs less* to buy, install and maintain—because it's simpler!



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Regulates volume as you desire. A quarter-turn of the handle locks it positively in any position. Check valve eliminates need to close hose lines to prime pump. Smooth operation—heavy duty construction.

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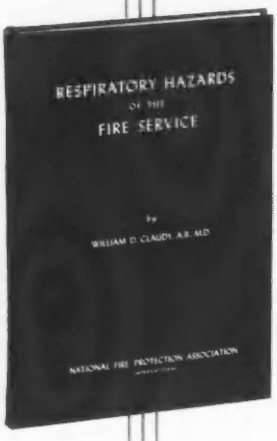

"RESPIRATORY HAZARDS of the FIRE SERVICE"

A valuable and timely book by Dr. William D. Claudy, member, Board of Police and Fire Surgeons, Washington, D. C., and surgeon of the Falls Church Volunteer Fire Department and the Arlington County Fire Department in Virginia.

Dr. Claudy has been a frequent contributor to NFPA FIREMEN magazine, and many of his excellent articles on first aid, artificial respiration, treatment of burns and handling contagious diseases have been reprinted in response to requests from readers. In this book Dr. Claudy describes in firemen's language the respiratory hazards that confront fire fighters. About one-third of the book is devoted to the construction, use and maintenance of canister and self-contained masks. Other sections deal with the all-important anatomic and physiologic problems due to smoke inhalation and lack of oxygen, toxic gases, fire fighting procedures and numerous other facts that are extremely important to a fire fighter's well-being.

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Other Toxic Gases Resulting from the Burning of Ordinary Combustibles
Related Factors Affecting Performance
Toxic Gases Encountered as the Result of Fire Fighting and Extinguishment
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